Run

```
Sequence
Arabidops
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
Arabidops
Arabidops
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Oryza sat
Arabidops
Arabidops
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Arabidops
                                                                                                                                                                                                                                                                                                                                                   Sequence
Brassica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Oryza sat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Arabidope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Arabidope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Arabidop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                            Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                               Description
                                                                                                                                                                                                                                                                                                                       AX088876 S
AX825703 S
AX825705 S
AY028699 E
                                                                                                                                                                                                                                                                                                                                                                             AX825738
BT008409
AY058901
AY058901
AY058901
AY058901
AY058901
AY058901
AX080801
AX08080274
AX08080271
AX0808080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AY075681
AC137001
AK110196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ALIGNMENTS
                                                                                                                                                                                                                                                    SUMMARIES
                                                                                                                                                                                                                                                                                                                         AX088876
AX825703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AY113877
             em htg hum: *
em htg inv: *
em htg other: *
em htg of mus: *
em htg oln: *
em htg oln: *
em htg oln: *
                                                                                                                                                                   em_htgo_other:*
                                                                                                                         em_sy:*
em_htgo_hum:*
em_htgo_mus:*
                                                                                                            vrt:
                                                                                                                                                                                                                                                                                               <u>B</u>
                                                                                                         em_htg_v
                                                                                                                                                                                                                                                                                Query
Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2324
79706
1812
1812
1902
1902
1933
1933
2013
2013
2025
2025
2104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         82356
92861
125021
114367
125502
em vi:*

      444444444444444

      64444444444

      644466

      64466

      64466

                                                                                                                                                                                                                                                                                                                         0.0001

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.000000

0.0000

0.00000

0.00000

0.00000

0.00000

0.0000

0.0000

 22933
22933
22933
22933
22933
22933
22933
22933
22933
22933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1841.5
1821.5
1812.
1748.5
1748.5
1748.5
1748.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1574.5
1567.5
1567.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1507
1507
1507
1479.5
1479.5
1459.5
1459.5
                                                                                                                                                                                                                                                                                               Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1434.5
1431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               687
                                                                                                                                                                                                                                                                                Result
No.
                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    υ
                                                                                                                                                                                                                                                                                                                                                                                                                                               April 24, 2004, 20:09:36; Search time 5876 Seconds (without alignments) 4772.455 Million cell updates/sec
                                                                                                                                                     US-10-086-464-2
3453
1 MSSAPSPGTGSPPSPPSNST.....REMEMGKIKRTGQGYSGPSL
                                                                                                                                                                                                                                                                                                                          6940544
               GenCore version 5.1.6
(c) 1993 - 2004 Compugen Ltd.
                                                                     OM protein - nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                               3470272 seqs, 21671516995 residues
                                                                                                                                                                                                                                                                                                                         Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                           Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                          0.5
                                                                                                                                                                                                                       Xgapop 10.0 , Xgapext
Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
                                                                                                                                                                                                                                                                                                                                                   Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gb ba: *
gb htg: *
gb on: *
gb ov: *
gb pat: *
gb pl: *
gb pr: *
gb rc: *
gb rc: *
gb v: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           em hum: *
em in: *
em mu: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            em_pat: *
em_ph: *
em_ph: *
em_pl: *
em_ro: *
em_sts: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    em_or:*
em_ov:*
                            Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GenEmbl:*
                                                                                                                                                                                                            BLÒSUM62
                                                                                                                                                                   Perfect score:
                                                                                                                                                                                                             Scoring table:
                                                                                                                                                                                   Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Jatabase
                                                                                                  ë
ë
```

sat

480 180 540 200 600 220 999 240 720 260 780 280 840

420

```
GlullelleSerArgValHisHisArgHisLevValSerLeuValGlyTyrCysIleAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTTGGCGTTGTTGGAGCTCATTACTGGACGTCGACCCGTTGATGCCAACAATGTC
                                             LyslyslysakgargargaspglugluaspalaTyrTyrValProProProProProPro
                                                                                                                                                                                                                      GlyProLysalaGlyGlyProTyrGlyGlyGlnGlnGlnGlnTrpArgGlnGlnAsnAla
                                                                                                                                                                                                                                                                                       ThrProproSerAapHisValThrSerLeuProProProLysAlaProSerPro
                                                                                                                                                                                                                                                                                                                                                   ProArgGlnProProProProProProProPheMetSerSerGlyGlySerAsp
                                                                                                                                                                                                                                                                                                                                                                       CCACGGCAACCTCCTCCACCTCCACCCCTTTCATGAGCAGCAGCGGCGGCTCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGCACTTTCACATACGAGGAGCTAGCTAGAGCCACCAATGGTTTCTCCGAGGGGAACTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuGlyGlnGlyGlyPheGlyTyrValHisLyBGlyValLeuProSerGlyLyBGluVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTAGGACAAGGCGGGTTCGGTTACGTGCACAAAGGTGTGTTGCCTAGTGGGAAAGAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CATGGCGAGGACGGCCTACAATGGAATGGAGCACCAGATTGAAGATTGCTCTTGGATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IyaklaSerksnileLeuileAspPheLysPheGluklaLysValklakspPheGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1201 AAGGCTTCAAACATATTGATAGATTTCAAGTTTGAAGCTTAAGGTTGCTGATTTTGGTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alarys1leAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGly
CCACCTTCAGTCCCAGGACCACCGTCCAATCCTTCACGCGAAGGAGGATCTCCTCGACCT
                                                                                                                                                                            GGTCCCAAAGCCGGAGGACCTTACGGTGGACAGCAACAATGGCGGGAACAAAAACGCA
                                                                                                                                                                                                                                                                                                      SerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnVal
                            781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1081
 301
                               121
                                                             361
                                                                                             141
                                                                                                                             421
                                                                                                                                                             161
                                                                                                                                                                                           481
                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                         541
                                                                                                                                                                                                                                                                                       201
                                                                                                                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                                                                       221
                                                                                                                                                                                                                                                                                                                                                                                      661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8 & 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             상
원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
 8 6 8
                                                                                   8686
                                                                                                                                                                                                               ∂
                                                                                                                                                                                                                                             8 8
                                                                                                                                                                                                                                                                                                                원
                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                         ⋩
                                                                                                                                                                                                                                                                                                                                                                                                                                              8 % 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ⋧
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8 8 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઢ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                 / Godon start=1
/codon start=1
/proteIn id="CAC34703.1"
/db_xref="di:13397640"
/db_xref="markerprepsperprospepple-popsprap-proproprogram-proproprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-program-proprogram-proprogram-proprogram-proprogram-proprogram-program-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-proprogram-program-proprogram-proprogram-program-proprogram-proprogram-proprogram-proprogram-proprogram-program-proprogram-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-program-pr
                  PAT 17-MAR-2001
                                                                                                           Brassica napus
Eukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Magnollophyta, eudicotyledons, core eudicots,
rosids, eurosids II; Brassicales, Brassicaceae, Brassica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProAlaProThrThrProGlySerProProAlaProValThrProProThrArgAsnPro 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCATCCACTATTCCGACATCTCCTCCTTCTTCTCTCTCCTCCACCTTCTGCTCCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ProProSerValProGlyProProSerAsnProSerArgGluGlyGlySerProArgPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ProSerThrIleProThrSerProProPserSerArgSerThrProSerAlaProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCGGCTCCAACTACGCCCGGATCTCCACCCGCACCTGTTACTCCTCCTACTCGAAAACCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1944
647
0
0
0
                                                                                                                                                                                      doring, D. and Silva, N.
Proline-rich extensin-like receptor kinases Patent: WO 0114563-A 1 01-MAR-2001; Goring, Daphne (CA); Silva, Nancy (CA)
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:

    1944
/note="unnamed protein product"

                                                                                                                                                                                                                                                                                     /organism="Brassica napus"
/mol_type="unassigned DNA"
/db_xref="taxon:3708"
1. _1944
                  1944 bp
1 from Patent WO0114563.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (1-1944)
               AX088876
Sequence 1 from Patent 1
AX088876
AX088876.1 GI:13397639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-086-464-2 (1-647) x AX088876
                                                                                             napus (rape)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4.02e-76
3453.00
100.00%
100.00%
                                                                                                                                                                                                                                                                          1944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Percent Similarity:
Best Local Similarity:
                                                                                                 Brassica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ਜ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match:
DB:
               LOCUS
DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                          REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment
                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                         SGS
 AX088876
                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score:
```

1080

360

1020 340

960

300 900 320 1140

380

1200

400

1260

440

420

8 6 8

\$ **8** 8

g

ઠે 셤 õ 1320

460

1440

셤

셤

ે

ઠે

a 8 8

8 6 8 6

셤

8 g

6 6 6

```
AKMINGYDREEMARWVACAAACVRHSARRRPRMSQIVRALEGNVSLSDLNEGMRPGQS
NVYSSYGGSTDYDSSQYNEDMKKRRKMALGTQEYNATGEYSNPTSDYGLYPSGSSSEG
QTTREMEMGKIKRTGQGYSGPSL"
                                                                                                                                                                                                                                                                                                                                                                   180
                                                                                                                                                                                                                                                                                                                                                                                                                                                         100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                                                                           120
                                                                                                                                                                                                                                                                                                                                                                                                                            240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyIleAlaIleGlyGlyValAlaLeuLeuValIleValThrLeuIleCysLeuLeuCys 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TACTCGGACCGTCCAGTTCTTCCTCCACCGTCTCCAGGGCTTGTGTTAGGCTTCTCCAAA 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    840
                                                                                                                                                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                        20
                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                              40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCATCTTCTCCCTCGCCGCCGTCTCCTTCCGACGGTTTATCAACAGGAGTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ProArgGlnProProProProProProProProPheMetSerSerGlyGlySerAmp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCACGGCAACCTCCTCCACCTCCACCACCACCACTTTCATGAGCAGCAGCGGCGGCGCTCCCGAC
                                                                                                                                                                                                                                     41 ProSerThrIleProThrSerProProSerSerArgSerThrProSerAlaProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProAlaProThrThrProGlySerProProAlaProValThrProProThrArgAsnPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LysLysLysArgArgArgAspGluGluAspAlaTyrTyrValProProProProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ThrProProSerAspHisValValThrSerLeuProProProProLysAlaProSerPro
                                                                                                                                                                                                                                                                                 Thr Thr Thr ProProProAlaSerAlaProProProThr Thr ProSerSerProProProPro
                                                                                                                                                                                                                                                                                               ProSerProProThrProSerThrProGlySerProProLeuProGlnProSerPro
                                                                                                                                                                                                                                                                                                                                                                                                               CCCGCTCCAACTACGCCCGGATCTCCACCCGCACCTGTTACTCCTCCTACTCGAAACCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCACCTTCAGTCCCAGGACCACCGTCCCATCCTTCACGCGAAGGAGGAGTCTCCTCGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGAATCGCCATCGGAGGAGTCGCTCTGCTTGTGATAGTGACTCTGATTTGTCTCCTCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyProLysAlaGlyGlyProTyrGlyGlnGlnGlnGlnTrpArgGlnGlnAsnAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACACCACCACAGATCATGTCGTGACGTCACTACCACCACCACCACAAAGGCTCCATCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TyrSerAspArgProValLeuProProProSerProGlyLeuValLeuGlyPheSerLyB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGCACTTTCACATACGAGGAGCTAGGCTAGAGCCACCAATGGTTTCTCCGAGGCGAACTTG
                                                                                                                                                                                                                        MetSerSerAlaProSerProGlyThrGlySerProProSerProSerAsnSerThr
                                                                                                                                                                                                                                                                                                                                                           CCATCCACTATTCCGACATCTCCTCCTTCTTCTCTCGCTCTACACCTTCTCGCTCCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProProSerValProGlyProProSerAsnProSerArgGluGlyGlySerProArgPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LeuGlyGlnGlyGlyPheGlyTyrValHisLyBGlyValLeuProSerGlyLyBGluVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProSerSerProSerProProSerProSerSerAspGlyLeuSerThrGlyValValVal
                                                                                      1944
647
0
0
0
                                                                                      Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                           (1-1944)
                                                                                                                                                                                           US-10-086-464-2 (1-647) x AX825703
                                                                                    4.02e-76
3453.00
100.00%
100.00%
                                                                                                                    Percent Similarity:
Best Local Similarity:
                                                                          Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                        н
                                                                                                                                                                                                                                                                                 21
                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                         81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                281
                                                                                                                                               Query Match:
DB:
                                                                                       . No. .
                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              음 &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8 %
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /pocesin id="CAB84846.1"
/db_xref="G1:39751231"
/translation="MSSAPSPECTGSPPSPRSTTTTTPPPAARPPTTPSSPPPFSTT
/translation="MSSAPSPETSPFGSPPPLPQPSPPATTPGSPPPFSTT
STSPPSSKSTPSAPPPSPPTPSTFGSPPPLPQPSPPATTPGSPPATTPPPTPTPPPPFSTT
SVPGPPSNPSREGGSPRPPSSPPSPPSSPSDFGLSTGVVVGIALGGVALLVITTLCLLC
KKKRRNDEEDAYYPPPPPPGPRAGGPYGGQQQWRQQNATPPSDHVVTSLPPPFKAP
SPPRQPPPPPPPRSSSGGSDYSDRPVLPPPSPCHTTFELARATNGFS
                                                                                                                                                              1620
                                                                                                                                                                                                                      1680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BANLIGQGGFGYVHKGVLPSGKEVAVKQLKVGSGQGBREFQAEVEIISRVHHRHLVSL
VGYCIAGARKLLYYBEVPINNILELHLHGGGRPFWEWSTRIKTLGSAKGLSYLHBDCN
VBIIHRDIKASNILIDEKFERKVADFGLAKIASDTWTHVSTRYWGTFGYLAPEYASG
KLITEKSDVFSFGVVLLELITGRRPVDANNYYDDSLVDWARPLLNRABEQGDFGLAN
                                                                                                                                                                                                                                                                              1681 ATGAGACCAGGTCAAAGCAATGTATACAGCTCATACGGAGGAAGCACCGATTATGACTCG 1740
                                                                                                                                                                                                                                                                                                                             540
                                                                                                                                                                                          260
                                                                                                                                                                                                                                                                                                            009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PAT 11-DEC-2003
                                                                                                                                                                                                                                                     280
                                                                                                                                                                                                                                                                                                                                                                    620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Brassica napus
Eukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Magnoliophyta, eudicotyledons, core eudicots,
rosids, eurosids II, Brassicales, Brassicaceae, Brassica.
                                                                                                                                                                                        TATGTAGATGACAGCTTAGTTGACTGGGCACGACCATTGCTTAACCGAGCATCTGAGCAA
                TyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGluGln
                                                                       GlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMet
                                                                                            GGAGACTTTGAGGGTTTAGCTGATGCAAGATGAATAATGGGTATGACAGAGAGGAGGTTG
                                                                                                                                  AlaArgMetValAlaCysAlaAlaAlaAlaAcysValArgHisSerAlaArgArgArgProArg
                                                                                                                                                 GCTCGCATGGTTGCTTGTGTGTGCTGGTGTTCGCCATTCAGCTCGCCGCAGACCTCGC
                                                                                                                                                                                                                                                   MetargProGlyGlnSerAsnValTyrSerSerTyrGlyGlySerThrAspTyrAspSer
                                                                                                                                                                                                                                                                                                           SerGlnTyrAsnGluAspMetLysLysPheArgLysMetAlaLeuGlyThrGlnGluTyr
                                                                                                                                                                                                                                                                                                                                                                   AsnAlaThrGlyGluTyrSerAsnProThrSerAspTyrGlyLeuTyrProSerGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               , Haffani, Yosr,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'note="unnamed protein product"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Increasing plant seed production
Patent: WO 03072763-A l 04-SEP-2003;
Goring, Daphne (CA); Silva, Nancy (CA)
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1. 1944
/organism="Brassica napus"
/mol_type="unassigned DNA"
/db_xref="taxon:3708"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Goring, D., Silva, N. and Haffani, Y.Z.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AX825703 1944 bp
Sequence 1 from Patent W003072763.
AX825703
AX825703.1 GI:39751230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGTTATAGTGGACCTTCTCTT 1941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GlyTyrSerGlyProSerLeu 647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Brassica napus (rape)
                                                                                                                                                                                                                     1621
                                                                                                                                                                                                                                                                                                                                      1741
                                                                                                                                                                                                                                                                                                                                                                                                1801
                                           1441
                                                                                                                                                              1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      641
                                                                          501
                                                                                                     1501
                                                                                                                                  521
                                                                                                                                                                                           541
                                                                                                                                                                                                                                                     561
                                                                                                                                                                                                                                                                                                           581
                                                                                                                                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                                                                                                                                                                                                            621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1921
                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AX825703
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
```

g

õ

8 G

ð

8 6 8 6

g

8 &

8 6 8 6

ያ ප ያ

8 6 8 6

g

8 6

\$ B \$

g

8 8

g

ð

ઠે

```
11-DEC-2003
                                                                                               Bukaryota, Vinidiplantae, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Magnoliophyta, eudicotyledons, core eudicots,
rosids, eurosids II, Brassicales, Brassicaceae, Brassica.
                                                                                                                                                                                                                                                                                                                                                                                                                                   CCATCTCCACCAACTCCATCTACGCCGGGATCTCCACCTCCTCTTCCTCAGCCGTCTCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ProblaProThrThrProGlySerProProAlaProValThrProProThrArgAsnPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlyProLysAlaGlyGlyProTyrGlyGlyGlnGlnGlnTrpArgGlnGlnAsnAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ProSerProProThrProSerThrProGlySerProProLeuProGlnProSerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCGCTCCAACTACGCCGGGATCTCCACCGGCACGTTACTCCTCCTACTGGAAACCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LysLysLysArgArgArgAspGluGluAspAlaTyrTyrValProProProProProProPro
                                                                                                                                                                                                                                                                                                                                                   MetSerSerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThr
                                                                                                                                                                      8
                            PAT
                                                                                                                                                                      Haffani,
                                                                                                                                                                                                                                                           2189
647
0
0
0
                                                                                                                                                                      •-
                                                                                                                                                                                                                                                            Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                               1
Goring, D., Silva, N. and Haffani, Y.Z.
Increasing plant seed production
Patent: WO 03072763-A 3 04-SEP-2003;
Goring, Daphne (CA); Silva, Nancy (CA)
Location/Qualifiers
                              DNA

    .2189
    /organism="Brassica napus"
/mol_type="unassigned DNA"
/db_xref="taxon:3708"

                            AX825705 2189 bp
Sequence 3 from Patent WO03072763.
AX825705
                                                                                                                                                                                                                                                                                                                                 (1-2189)
                                                          AX825705.1 GI:39751232
                                                                                                                                                                                                                                                                                                                                  x AX825705
                                                                                                                                                                                                                                                            4.38e-76
3453.00
100.00%
100.00%
                                                                              (rape)
                                                                             Brassica napus
Brassica napus
                                                                                                                                                                                                                                                                               Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                 (1-647)
                                                                                                                                                                                                                                                     Scores:
                                                                                                                                                                                                                                                                                                                                 US-10-086-464-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                     н
                                                                                                                                                                                                                                                                                                                                                                         97
                                                                                                                                                                                                                                                                                                                                                                                            21
                                                                                                                                                                                                                                                                                                                                                                                                                157
                                                                                                                                                                                                                                                                                                                                                                                                                                    41
                                                                                                                                                                                                                                                                                                                                                                                                                                                      217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
        RESULT 3
AX825705
LOCUS
DEFINITION
ACCESSION
VERSION
VERSION
SCYNCE
ORGANISM
                                                                                                                                                                                                                                                    Alignment S
Pred. No.:
                                                                                                                              REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                           8 6 8 6 8 6 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                    원
장
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ठे
                                                                                                                     1080
                                                                                                                                                                                                  1200
                                                                                                                                                                                                                                         1260
                                                                                                                                                                                                                                                                                 1320
                                                                                                                                                                                                                                                                                                                        1380
                                                                                                                                                                                                                                                                                                                                                               1440
                                                                                                                                                                                                                                                                                                                                                                                                       1500
                                                                                                                                                                                                                                                                                                                                                                                                                                             1560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1920
                                                                                                                                                                                                                                                             440
                                                                                                                                                                                                                                                                                                                                                                                 200
                                                                                                 360
                                                                                                                                         380
                                                                                                                                                                               400
                                                                                                                                                                                                                                                                                                     460
                                                                                                                                                                                                                                                                                                                                             480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     640
                                                                                                                                                                                                                       420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      009
                   320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGluGln
                                                                                                                                                                                                                                                                                                                                                                                                                         TTAGGACAAGGCGGGTTCGGTTACGTGCACAAAGGTGTGCCTAGTGGGAAAGAAGTT
                               GlyAlalysArgLeuLeuValTyrGluPheValProAsnAsnAsnLeuGluLeuHisLeu
                                                                                                            GGTGCCAAAAGATTGCTTGTCTATGAGTTTGTTCCTAACAACAATCTCGAGCCTTCACCTC
                                                                                                                                        HisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySer
                                                                                                                                                    CATGGCGAGGGACGGCCTACAATGGAATGGAGCACCAGATTGAAGATTGCTCTTGGATCT
                                                                                                                                                                                                                                                             AlaLy8IleAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGly
                                                                                                                                                                                                                                                                                             TyrieuAlaProGluTyrAlaAlaSerGlyLyseuThrGluLysSerAspValPheSer
                                                                                                                                                                                                                                                                                                              TTTGGCGTTGTGCTTTTGGAGCTCATTACTGGACGTCGACCGCGTTGATGCCAACAATGTC
                                                                                                                                                                                                                                                                                                                                                                                              TATGTAGATGACAGCTTAGTTGACTGGGCACGACCATTGCTTAACCGAGCATCTGAGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AlaArgMetValAlaCysAlaAlaAlaAlaAlaArgProArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCTCGCATGGTTGCTTGTGCTGCGGCTTGTGTTCGCCATTCAGCTCGCCGCAGACCTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MetSerGlnIleValArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MetArgProGlyGlnSerAsnValTyrSerSerTyrGlyGerThrAspTyrAspSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerGlnTyrAsnGluAspMetLysLysPheArgLysMetAlaLeuGlyThrGlnGluTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AsnAlaThrGlyGluTyrSerAsnProThrSerAspTyrGlyLeuTyrProSerGlySer
                                                                                                                                                                                                                                                                                                                                             PheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnVal
                   AlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGTTATAGTGGACCTTCTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyTyrSerGlyProSerLeu
                                                                                                                     1021
                                                                                                                                          361
                                                                                                                                                            1801
                                                                                                                                                                               381
                                                                                                                                                                                                   1141
                                                                                                                                                                                                                       401
                                                                                                                                                                                                                                         1201
                                                                                                                                                                                                                                                                                 1261
                                                                                                                                                                                                                                                                                                     441
                                                                                                                                                                                                                                                                                                                        1321
                                                                                                                                                                                                                                                                                                                                             461
                                                                                                                                                                                                                                                                                                                                                               1381
                                                                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                       1441
                                                                                                                                                                                                                                                                                                                                                                                                                                              1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1921
                                      901
                                                          321
                                                                              196
                                                                                                 341
                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                                           501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     621
                  301
```

140

516 160 180

636

576

200

120

456

100

396

336

80

276

9

156

3

620

9

PLN 26-MAR-2001 complete cds.

```
| 1...in | Lype="mRNA" |
| / 2...in | Lype="mRNA" |
| / 3...in | Lype="mRNA
                                                                                                                                                                                                             Enkaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Wagnoliophyta; eudicotyledons; core eudicots; rosids; eurosids II; Brassicales; Brassicaceae; Brassica. 1 to 2189)
Silva, M.F. and Goring, D.R.
Characterization of a novel Brassica napus receptor protein kinase
                                  1837 AGCCAGTACAATGAAGAACATGAAGAAGTTTAGGAAAATGGCACTTGGAACTCAAGAGTAC
                                                                                                                                               601 AsnAlaThrGlyGluTyrSerAsnProThrSerAspTyrGlyLeuTyrProSerGlySer
                                                                                                                                                                  AACGCCACGGGTGAGTACAGTAATCCGACCAGTGACTATGGACTGTACCCGTCTGGTTCA
                 MetArgProGlyGlnSerAsnValTyrSerSerTyrGlyGlySerThrAspTyrAspSer
                                                                               SerGlnTyrAsnGluAspMetLysLysPheArgLysMetAlaLeuGlyThrGlnGluTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Unpublished
2 (bases 1 to 2189)
2 ilva,N.F. and Goring,D.R.
Direct Submission
Submitted (19-MAR-2001) Biology, York University, 4700
Street, Toronto, Ohtario M3J 1P3, Canada
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                         אועבאטא באפאנים חבר באפטרטר באפאטא
Braseica napus receptor protein kinase PERKI mRNA,
AY028699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2189
647
0
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                               AY028699.1 GI:13447448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Brassica napus (rape)
Brassica napus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4.38e-76
3453.00
100.00%
100.00%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PERK1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment Scores:
Pred. No.:
                                                                                                                                                                                1897
                 261
                                                                               581
                                                                                                                                                                                                                                                                                                                                                                                LOCUS
DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                               AY028699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                                                                                                              요
                 유성
                                                                            ઠે
                                                                                                    유장
                                                                                                                                                                       g
                                                                                                                                                                                                               8 8
                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1057 GAGATCATCAGCAGAGTTCACCACAGGCATCTGGTGTTCTTGTTGGTTATTGCATCGCC 1116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CATGGCGAGGGACGGCCTACAATGGAATGGAGCACCAGATTGAAGATTGCTCTTGGATCT 1236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTAAGATTGCTTCTGATACAAACACGCATGTATCAACACGTGTGGGAACCTTTGGG 1416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCTCGCATGGTTGCTTGTGTGCTGCGGCTTGTGCTTCGCCATTCAGCTCGCCGCAGACCTCGC 1716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   420
                                                                                                                                                                                                                                                                                                                                                                                                                                    GlullelleSerArgValHisHisArgHisLeuValSerLeuValGlyTyrCysIleAla 340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLys1leAlaLeuGlySer 380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AlaLysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAspIle 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AlaLysileAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGly 440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaArgMetValAlaCysAlaAlaAlaCysValArgHisSerAlaArgArgProArg 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MetSerGlnIleValArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGly 560
                                                               756
                                                                                                                                                                260
                                                                                                                                                                                                                                                               936
                                                                                                                                                                                                                                                                                                  LeuGlyGlnGlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLysGluVal 300
                                                                                                                                                                                                                                                                                                                                   966
                                                                                                                                                                                                                                                                                                                                                                  AlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluVal 320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGluGln 500
                           TTAGGACAAGGCGGGTTCGGTTACGTGCACAAAGGTGTGTTGCCTAGTGGGAAAGTT
GGTCCCAAAGCCGGAGGACCTTACGGTGGACAGCAGCAACAATGGCGGCAACAAAACGCA
                                                                                             ProArgGlnProProProProProProProPheMetSerSerGlyGlySerAsp
                                                                                                              SerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LysalaSerAsnIleLeuIleAspPheLysPheGluAlaLysValAlaAspPheGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1597
                                                                                                                              757
                                                                                                                                                                                                                                                              877
                                                                                                                                                                                                                                                                                                                              937
                                                              697
                                                                                                                                                                                              817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          541
                               201
                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                281
                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                   997
                                                                                                                                                                                                                                                                                                                                                                                                                                    321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         481
                                                                                               221
                                                                                                                                                                                                                               261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     421
                                                       8 & 8
                                                                                                                                                  6 6 6 6 6 6 6 6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8 & 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8686
```

us-10-086-464-2.rge

Spermatophyta, Magnoliophyta, eudicotyledons, core eudicots, rosids, eurosids II, Brassicales, Brassicaceae, Arabidopsis.	4 0	
:	<i>₹</i> 8	248 ProbroProSerProGlyLeu\
GOTING, Dapine (CA); Sliva, Nancy (CA); Hattani, Yosr, Z. (CA) FEATURES Location/Qualifiers Source 1. 1959 /organism="Arabidopsis thaliana"	ζό qα	268 LeuAlaArgAlaThrAsnGlyE :::
/mol_type="unassigned DNA" /db_xref="taxon:3702" ORIGIN	۸۵	288 TyrValHisLysGlyValLeuE
Alignment Scores: 1.23e-63 Length: 1959	අ <i>ර</i>	877 TATGTGCATAAAGGTATATTGC 308 GlySerGlyGlnGlyGluArgC
2936.50 Matches: 90.61% Conservative:	: A	
Best Local Similarity: 85.97% Mismatches: 41 Query Match: 85.04% Indels: 21 6 Gaps: 12	<i>\</i> o	328 HisArgHisLeuValSerLeuV
x AX825738 (1-1959)	qq	997 cacaddcarrrddrircrcrrz
Qy 1 MetSerSerAlaProSerProGlyThrGlySerProProSerProProSer 17	ð í	348 TyrGluPheValProAsnAsnA
Db 1 ATGTCCACAGCGCCGTCTCCAGGACTACTCCATCACCATCTCCACGGTCTCCTCCACCACGCACA 60	90 30	
Qy 18 AsnSerThrThrThrThrProProProAlaSerAlaProProProThrThrPro 35	ි සි	1117 ATGGAATGGAGTACTAGATTGA
ol Ancicoachachechecicciccaedaecheccicciccicciccicciccicciccic iz	ò	388 HisGluAspCysAsnProLysI
SetSeffrortorrors	qa	1177 CATGAAGATTGCAATCCGAAA
55 ThrProSerAlaProProSerProProThrProSerThrProGlySerProProPro	ò 8	408 AspPheLysPheGluAlaLysV
181 CCTCCTCTCTCCTCCATCTCTCGGATCTTTAACTCCTCCT	λΌ	428 AsnThrHisValSerThrArgV
<pre>Qy /></pre>	qq	1297 AACACTCATGTATCTACACGCG
95 ProProThrArghanProProSerValProGlyProProSerAsnProSerArg 11	ò	448 AlaSerGlyLysLeuThrGluI
286 CCTCAAACCTCGAAGCCTCCATCTCTAACCAAGACACCAACAACACTCCCTCA	qa d	
GluGlyGlySerProArgProProSerSerProSerProPerSerSer	à a	198 Leulielinistyatyatyatyion
543GVARLITALIOLIANAMALICAALAANAMAANIOGIOGOOGOOLOIOLOONIILOI 59 132 AspGlybeuSerThrGlyValValValValGly1leAlaaleGlyGlyValAlaaLeubeuVal 15	ò	488 AspTrpAlaArgProLeuLeuA
Db 400 GATGGATTGTCTACCGGAGTTGTGGTAGGAATTGCCCATTGGAGGAGTCGCTATTCTTGTT 459	qa	
152 IleValThrLeulleCysLeuLeuCysLysLysLysArgArgAspGluGlu 16	ර් සි	508 AspalaLysMetAsnAsnGlyT
460 ATACTGACTCTGATTTGTCTTCTCTGTAAGAAGAAAAAAAA	ò	528 AlaAlaCysValArgHisSerA
D 520 GCTGCTTACTATCTCCTCCTCCTCCTCCTAAAGCTGGGGGGGAGGGGGT 579	ପ୍ର	GCGCCTTGTGTTCGCCATT
190 GlyGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAspHisValVal 20;	ờ සි	548 LeuGluGlyAsnValSerLeuS
580 GGTCAACAATATTGGCAACAACAAAGGCGTCACGGCCGTCAGATAATCATGTAGTG 63	ò	568 ValTyrSerSerTyrGlyGlyS
ThrSerLeuProProProProLysAlaProSerProProArgGlnProProProProProProProProProProProProProP	q _C	_£
940 ACGICALIGETTCCACCIACACCIACACCACGAAAACCICCICCGCCACCI 95 229 ProproproPheMetSerSerSerGlyGlySerAspTyrSerAspArgProValleu 24	ò	588 LysLysPheArgLysMetAlaI
		-

```
1116
                                                                                                                                                                                          svalalaaspPheGlyLeuAlaLysIleAlaSerAspThr 427
                                                                                                                                                                                                                                                                                                                                                                               1536
                                                                                                                                                                                                                                                                                                                                                                                                                                                   SeraspleuasngluglyMetargProGlyglnSerAsn 567
                                                                                                                                                 1056
                                                                                                                                                                                                                              NAAGTCTGACGTTTTCTCATTTGGCGTTGTACTTTTGGAA 1416
                                                                                                                                                                                                                                                                                                                                                  1476
                                                                                                                                                                                                                                                                                                                                                                                                         1596
                                                                                                                                                                                                                                                                                                                                                                                                                       816
                                                              876
                                                                                                                      966
                                                                                                                                    347
                                                                                                                                                               367
                                                                                                                                                                                                                                                                              447
                                                                                                                                                                                                                                                                                                          467
                                                                                                                                                                                                                                                                                                                                     487
                                                                                                                                                                                                                                                                                                                                                                 507
        756
                      267
                                                 287
                                                                            JProSerGlyLygGluValAlaValLygGlnLeuLygVal 307
                                                                                          936
                                                                                                        327
                                                                                                                                                                                                                      407
                                                                                                                                                                                                                                                                                                                                                                                             527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerThrAspTyrAspSerSerGinTyrAsnGluAspMet 587
JVAIGIYTYCY8IleAlaGlyAlaLy8ArgLeuLeuVal
|:::|||||||||||
|TATTGTTATTGTATGGCCGGTGTTCAAAGATTACTTGTC
                                                                                                                                                              3ValMetGlyThrPheGlyTyrLeuAlaProGluTyrAla
                                                                                                                                                                                                                                                                                                                                    VValaspalaasnasnvaltyrvalaspassserleuval
                                                                                                                                                                                                                                                                                                                                                                 ABRAKGAlaSerGluGlnGlyAspPheGluGlyLeuAla
                                                                                                                                                                                                                      silelleHisArgAspileLysAlaSerAsnileLeuile
                                                                                                                                                                                                                                                                                                          LysSerAspValPheSerPheGlyValValLeuLeuGlu
```

셤

ò

g

ò

```
/procedin_id="AAPB7759.1"

/db_xref="G1:30725474"

/db_xref="G1:3072547"

/db_
                                                                                                                                                                                                                                                                                                                                                                                                HEDONPKI IHRDIKASINIJI DEVERBAVADEGLAKI ASDTATHYOTERWIGTEGYLAPE
YAASGKI TEKSDVESFGVULLELI TGRR PUDANNYYDDSLVDWAR PLIARASEEGDF
EGLADSKWARSTREEMARWACAAACVRASARRR PRAKSQI VRALEGAVSLSDINEGM
RPGHISHVSSYGGSTOYDTSGYNDDMI KFRWALGTQEYGTTGEYSNPTSDYGLYPSG
SSSEGQATREMEMGKI KKTGQGYSGPSL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 ATGTCCACAGGGCGGTCTCCAGGCACTACTCCATCACCATCTCCACGGTCTCCTCCCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61 AACTCGACAACCACCACTCCTCCTCCAGCAGCCTCTTCTCCTCCTCCCACACACTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SerSerProPro---ProSerThr1leProThrSerProProSerSerArgSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181 CCTCCTTCTCCTCCTCCTCCTCCTCCTGGATCTTTAACT------CCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LeuProGlnProSerProProAlaProThrThrProGlySerProProAlaProValThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ProProThr --- ArgAsnProProProSerValProGlyProProSerAsnProSerArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 286 CCCTCAAACCCTCGAAGCCCTCCATCTCCTAACCAAGGACCACAAACACTCCCTCA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  152 IleValThrLeuIleCysLeuLeuCysLysLysLysArgArgArg-----AspGluGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  170 AspalaTyrTyrValProProProProProProGlyProLysAlaGlyGlyProTyrGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        --- GlySerProProSerProProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AsnSerThrThrThrProProProAla----SerAlaProProThrThrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  55 ThrProSerAlaProProProSerProProThrProSerThrProGlySerProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        114 GluGlyGlySerProArgProProSerSer----ProSerProProSerProSerSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     132 AspGlyLeuSerThrGlyValValGlyIleAlaIleGlyGlyValAlaLeuLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      460 ATACTGACTCTGATTTGTCTTCTCTGTAAGAAGAAAGGAAGAAGAAGAAGACGACGATGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1959
574
24
41
21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="compared to genome"
/replace="t"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps:
                          'note="unknown protein'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-086-464-2 (1-647) x BT008400 (1-1959)
                                                                                       /product="At3g24550"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MetSerSerAlaProSerProGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2936.50
90.61%
86.97%
85.04%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1.23e-63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Alignment
SCO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermacophyta; Magnoliophyta; eudicotyledons; core eudicots; Spermacophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.

I (bases I to 1959)

Cheuk, R., Chen, H., Kim, C.J., Shinn, P., Bowser, L., Carninci, P., Dale, J.M., Hayashizaki, Y., Hsuan, V.W., Ishida, J., Jones, T., Kamiya, A., Karlin-Neumann, G., Kawai, J., Lin, J., Miranda, M., Nauyen, M., Okogera, C. S., Palm, C. J., Quach, H.L., Satou, M., Seki, M., Southwick, A., Toriumi, M., Wong, C., Theologis, A. and Ecker, J.R.

Arabidopsis ORF clones
L Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cheuk, R., Chen, H., Kim, C.J., Shinn, P., Bowser, L., Carninci, P., Daleu, M., Hayashizaki, Y., Hsuan, V.W., Ishida, J., Jones, T., Dale, J.M., Karlin-Neumann, G., Kawai, J., Lam, B., Lin, J., Miranda, M., Narusaka, M., Nguyen, M., Onodera, C.S., Palm, C.J., Quach, H.L., Sakurai, T., Satou, M., Seki, M., Southwick, A., Toriumi, M., Wong, C., Theologis, A. and Bcker, J.R.

Direct Submission

Submitted (Is-MAY-2003) Salk Institute Genomic Analysis Laboratory Submitted (Is-MAY-2003) Salk Institute Genomic Analysis Laboratory Submitted Islongy Laboratory, The Salk Institute for Biological Studies, 10010 N. Torrey Pines Road, La Jolla, CA 92037,
                                                                                                                                                                                                                                                         1956
1777 ATAAAGTTTAGGAAAATGGCTCTTGGAACTCAAGAATACGGCACAACCGGCGAGTACAGT 1836
                                                                                                                                                                                                                                                                                                                                                                                      PLN 15-MAY-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Cheuk, R. (SSP/Salk) and Seki, M. (RIKEN GSC) contributed equally to this work. Shinozaki, K. (RIKEN GSC) and Ecker, J.R. (SSP/Salk) contributed equally to this work as PIs.
                                                                                                                                                                                         647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The discrepancy does not affect the protein sequence.
RIKEN Genomic Sciences Center (GSC) members carried out the
Collection and clustering of RAFL CDNAs (RAFL CDNA: 'RIKEN
Arabidopsis Full-Length CDNA'): Seki,M., Narusaka,M., Ishida,J.,
Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai,J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The Salk, Stanford, PGEC (SSP) Consortium members constructed and sequenced the pUNI (ORF) clones using the RAFL cDNAs: Cheuk, R., Chan, H., Kim, C.J., Shinn, P., Bowser, L., Chan, M.M., Chang, C.M., Dale, J.M., Hsuan, V.W., Jones, T., Karlin-Neumann, G., Lam, B., Lee, J.M., Lin, J., Miranda, M., Nguyen, M., Onodera, C.S., Palm, C.J., Quach, H.L., Southwick, A., Tang, C.C., Toriumi, M., Wong, C., Wu, H.C., Tang, C., C., Toriumi, M., Wong, C., Wu, H.C., Theologis, R., Yu, G., Yuan, S., Davis, R.W., Theologis, A., and
                                                                                                                                                                                  AsnProThrSerAspTyrGlyLeuTyrProSerGlySerSerGluGlyGlnThrThr
                                                                                                                         1837 AATCCAACCAGTGACTACGGACTGTACCCGTCTGGTTCAAGCAGTGAAGGTCAAGCCACA
                                                                                                                                                                                                                                                                                                                                                                                   BT008400 1959 bp mRNA linear Arabidopsis thaliana At3g24550 gene, complete cds. BT008400.1 GI:30725473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /ecotype="Columbia"
/note="This clone is in pUNI 51"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FLI CDNA.
Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            l. .1959
′organism="Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Satou, M., Kamiya, A., Sakurai, T.
Hayashizaki, Y. and Shinozaki, K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /mol_type="mRNA"
/db_xref="taxon:3702"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         chromosome="3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'clone="U17522"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cheuk, R. (S
this work.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ecker, J.R
                                                                                                                                                                                         628
                                                                                                                                                                                                                                                         1897
                                                            608
                                                                                                                                                                                                                                                                                                                                                                                   LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                      RESULT 6
BT008400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
```

285 113 342

94

228

74

120

54

9 35

17

399

151 459

131

169

519

189

셤

6 6 6

8 6 8 6 8

6 B 6 B 6 B 6

8 6 8 6 8 6 8 6 8

8 &

ે

중 음

```
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; rosida; eurosida II; Brassicales; Brassicaceae; Arabidopsis.

1 (bases 1 to 2098)

2 Tripp,M., Southwick,A., Karlin-Neumann,G., Nguyen,M., Miranda,M., Palm,C.J., Bowser,L., Jones,T., Banh,J., Carrinci,P., Chen,H., Chenk,R., Chung,M.K., Hayashizaki,Y., Ishida,J., Kamiya,A., Kawai,J., Kim,C., Lin,J., Liu,S.X., Narusaka,M., Pham,P.K., Sakano,H., Sakurai,T., Satou,M., Seki,M., Shinn,P., Yamada,K., Shinn,P., Kamada,K., Shinn,P., Submission Direct Submission.

Li Submitted (01-UUL-2002) DNA Sequencing and Technology Center, Stanford University, 855 California Avenue, Palo Alto, CA 94304,
                                                                                                                                                                              1836
                                                                                                                                                                                                                                                                                                                                               1956
                                                                                                                                                                                                                                                               1896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The RIKEN Genomic Sciences Center (GSC) members carried out the collection and clustering of RAFL cDNAs (RAFL cDNA : 'RIKEN Arabidopsis Full-Length cDNA'): Seki,M., Narusaka,M., Ishida,J., Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai, J., Hayashizaki,Y. and Shinozaki,K.
                                                                                                                                      607
                                                                                                                                                                                                                                                                                                                                                                                                                               PLN 07-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      equally
                                                                                                                                                                                                                      627
                                                                                                                                                                                                                                                                                                       647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="This clone is in pENTR/SD-dTopo This is a cloned PCR product using RIKEN clone RAFL09-06-A17 (AY059901) as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The Salk, Stanford, PGEC (SSP) Consortium members constructed an sequenced the pUNI (ORF) clones using the RAFL cDNAs: Tripp,M., Nguyen,M., Southwick,A., Karlin-Neumann,G., Lam,B., Miranda,M., Palm,C.J., Bowser,L., Jones,T., Banh,J., Chen,H., Cheuk,R., Chun,M., Kim,C., Lin,J., Liu,S.X., Pham,P.K., Sakano,H., Shinn,P., Yamada,K., Ecker,J., Theologis,A. and Davis,R.W.
                                                                                                                                                                                                                                                                                                                                                                                                                          AY128792 2098 bp mRNA linear PLN 07-AUG-2
Arabidopsis thaliana protein kinase-like protein mRNA, complete
588 LysLysPheArgLysMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSer
                                                                                                                                                                1777 ATAAAGTTTAGGAAAATGGCTCTTGGAACTCAAGAATACGGCACAACCGGCGGGGTTAAGGAATACGGCAAACT
                                                                                                                                                                                                                      AsnProThrSerAspTyrGlyLeuTyrProSerGlySerSerSerGluGlyGlnThrThr
                                                                                                                                                                                                                                                                                                       628 ArgGluMetGluMetGlyLysIleLysArgThrGlyGlnGlyTyrSerGlyProSerLeu
                                                                                                                                                                                                                                                                                                                          ValTyrSerSerTyrGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Tripp,M, (SSP/Stanford) and Seki,M. (RIKEN GSC) contributed to this work. Shinozaki,K. (RIKEN GSC) and Davis,R.W. (SSP/Stanford) contributed equally to this work as PIs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               e-mail for correspondence: arab@sequence.stanford.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           organism="Arabidopsis thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AY128792.1 GI:22136227
BLD CDNA
Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /mol_type="mRNA"
/db_xref="taxon:3702"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /ecotype="Columbia"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /clone="U16568"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1. .1959
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      template"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AY128792
                     1657
                                                                                                                                                                                                                                                                                                                                                                                     RESULT 7
AY128792
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                     8 A
                                                                                      셤
                                                                                                                              8
                                                                                                                                                                      a
                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                    8 8
                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1057 TATGAGTTTGTTCCAAACAACAACAACTTTGAGTTTCACCTCCATGGTAAGGGACGGCCTACG 1116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCAAGTGGAAAGCTCACAGAAAAGTCTGACGTTTTCTCATTTGGCGTTGTACTTTTGGAA 1416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  447
                                                                                                                                                                                                                                                                                                                                                                                                     467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            528 AlaAlaCysValArgHisSerAlaArgArgArgProArgMetSerGlnIleValArgAla 547
                                        639
                                                                                                                                                              247
                                                                                                                                                                                                                                            267
                                                                                                                                                                                                                                                                                    816
                                                                                                                                                                                                                                                                                                                          LeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGly 287
                                                                                                                                                                                                                                                                                                                                                               876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHis 327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HisArgHisLeuValSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuVal 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TyrGluPheValProAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThr 367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HisGluAspCysAsnProLysIleIleHisArgAspIleLysAlaSerAsnIleLeuIle 407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AspPheLysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThr 427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AspAlalysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAla 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          548 LeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsn 567
                                                                                                                                                           ProProPro---PheMetSerSerGlyGlySerAspTyrSerAspArgProValLeu
                                                                                                                                                                                                                                         ProProSroSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGlu
GlyGlnGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAsp---HisValVal
                         ThrSerLeuProProProProLysAlaProSerProProArgGlnProProProProPro
                                                                                                     CCACCACCAGCATTCATGAGTAGCAGTGGTGGTTCTGACTATTCGGATCTTCCGGTTCTT
                                                                                                                                                                                                                                                                                 cerceaecarereaecerrererraecerrrreraaaaecaerrreaerrareaecae
                                                                                                                                                                                                                                                                                                                                                 AsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AlaSerGlyLysLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LeulleThrGlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuVal
                                                                                                                                                                                                                                                                               757
                                                                                                                                                           229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    388
                                                                                503
                                                                                                                                                                                                    697
                                                                                                                                                                                                                                            248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1357
                                                                                                                                                                                                                                                                                                                            268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                468
```

```
HishrgHisLeuValSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuVal
                                                                                                                                                                                                                        LeualaargalaThrasnGlyPheSerGlualaasnLeuLeuGlyGlnGlyBheGly
                                                                                             AsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAla
                                                                                                                                                                                                                                                                                                                                                                     CITATTACTGGGAGGGCCCCTGTTGATGCGAACAATGTCTATGTAGATGACAGCTTAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                               AspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AspalaLysWetAsnAsnGlyTyrAspArgGluGluWetAlaArgMetValAlaCysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTAGAAGGAAATGTATCGCTGTCTGATCTTAACGAAGGGATGAGACCGGGTCACAGCAAC
                                                   ProProProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ValTyrSerSerTyrGlyGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMet
ACGTCATTG----CCACCACCTAAGCCTCCATCCACCACGAAAACCTCCGCCACCT
                                                                                                                                                                                                                                                                                                                             AspPhelysPheGluAlalysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThr
                                                                                                                                                                                                                                                                                                                                                                                                                               LeuilethrGlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuVal
                                                                                                                                                                                                                                         1057
                                                                                                                                                                                                                                                                           1117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1597
   540
                                   697
                                                    248
                                                                    757
                                                                                     268
                                                                                                    817
                                                                                                                       288
                                                                                                                                      877
                                                                                                                                                      308
                                                                                                                                                                       937
                                                                                                                                                                                        328
                                                                                                                                                                                                         997
                                                                                                                                                                                                                          348
                                                                                                                                                                                                                                                          368
                                                                                                                                                                                                                                                                                            388
                                                                                                                                                                                                                                                                                                            1177
                                                                                                                                                                                                                                                                                                                             408
                                                                                                                                                                                                                                                                                                                                             1237
                                                                                                                                                                                                                                                                                                                                                              428
                                                                                                                                                                                                                                                                                                                                                                             1297
                                                                                                                                                                                                                                                                                                                                                                                              448
                                                                                                                                                                                                                                                                                                                                                                                                               1357
                                                                                                                                                                                                                                                                                                                                                                                                                                468
                                                                                                                                                                                                                                                                                                                                                                                                                                                 1417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1717
                                                                                                                                                                                                                                      8 6 8
 8 6 B
                                              $ B $ B $ B $
                                                                                                                                                                  셤
                                                                                                                                                                                        8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8 6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
/product="protein kinase-like protein"

/protein id="AAM91192.1"
/db_xref="G1:22136228"
/db_xref="G1:22136228"
/traislation="WSTAPERSPERPTREPTTTPPPPAASSPPTTTPESPP
/traislation="WSTAPERSPERPSPERPENTYPERPREPEPP
/traislation="WSTAPERPEPPSPEROLIPPIPOPSPERPTTPESRPP
/traislation="WSTAPERPEPPSPEROLIPPIPOPSPERTTPESRPP
/traislation="WSTAPERPEPPSPEROLIPPIPOPSPEROLIPTITLICL
LCKKKRRRHBDDEAAYYPPPPPSPEROKAGGPYGGQOOVWQQONASRESDHHVVTSLPP
LCKKKRRRHBDDEAAYYPPPPPSPEROKAGGPYGGQOOVWQQONASRESDHHVVTSLPP
LCKKKRRRHBDDEAAYYPPPPPSPEROKAGGPYGGQOOVWQQONASRESDHHVVTSLPP
LCKKKRRRHBDDEAAYYPPPPPSPEROKAGGPYGGOOVAGGOGRERFORP
RUSSENLLGGGGFGYVHKGILPSGKEVANVGLKGRPTMEWSTRLKIALGSAKGLSYL
HLVSLIGYCMAGVQRLLYSEPVPNNNLEFHLHGKGRPTMEWSTRLKIALGSAKGLSYL
HBCONFKITHRDIKASNILIDFKFRAKAAFGRPTWANNYYVDDSLVUWARPLLMRASEEGDF
RGLADSKGNEYDREEMARNYAGAACVPHSARRRPRNSQIVALEGNVSLSDINNEGM
RPGHSNVYSSYGGSTDVYTSQYNDDMIKFRKNALGTQBYGTTGBYSNPTSDYGLYPSG
SSSEGQATREMEMGKIKKTGQGYSGPSL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             639
                                                                                                                                                                                                                                                                                                                     180
                                                                                                                                                                                                                                                                                                                                                     228
                                                                                                                                                                                                                                                                                                                                                                                     285
                                                                                                                                                                                                                                                                                                                                                                                                                                         131
                                                                                                                                                                                                                                                                                                                                                                                                                                                         399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            169
                                                                                                                                                                                                                                                                   35
                                                                                                                                                                                                                                                                                                    54
                                                                                                                                                                                                                                                                                                                                     74
                                                                                                                                                                                                                                                                                                                                                                      94
                                                                                                                                                                                                                                  AsnSerThrThrThrProProPla-----SerAlaProProThrThrPro
                                                                                                                                                                                                                                                                            ---ProSerThrlleProThrSerProProProSerSerArgSer
                                                                                                                                                                                                                                                                                                                                    Thr ProSerAla ProProProSer ProProThr ProSerThr ProGlySer ProProPro
                                                                                                                                                                                                                                                                                                                                                                      LeuProGlnProSerProProAlaProThrThrProGlySerProProAlaProValThr
                                                                                                                                                                                                                                                                                                                                                                              CTTCCTCAACCTTCCCCTCCGCTCCCATCACTCT---TCTCCACGCGTCTCCCACACA
                                                                                                                                                                                                                                                                                                                                                                                                        ProProThr -- - ArgAsnProProProSerValProGlyProProSerAsnProSerArg
                                                                                                                                                                                                                                                                                                                                                                                                                ---GGATCTACTCCTAGAACTCCATCAAACACTAAAACGGCGCCGCCGTCTGATTCTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AspGlyLeuSerThrGlyValValValGlyIleAlaIleGlyGlyValAlaLeuLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAsp---HisValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ThrserLeuProProProLysAlaProSerProArgGlnProProProProPro
                                                                                                                                                      2098
574
24
41
21
                                                                                                                                                                                                                                                                                                                                             CTCCTTCTCTTCTCCTCCATCTCCTCTGGATCTTTAACT
                                                                                                                                                      Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                   (1-2098)
                                                                                                                                                                                                                  x AY128792
                                                                                                                                                      1.29e-63
2936.50
90.61%
86.97%
85.04%
                                                                                                                                                                                                                                                                                                     SerSerProProPro-
                                                                                                                                               Alignment Scores:
Pred. No.:
Score:
Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                   (1-647)
                                                                                                                                                                                                                   US-10-086-464-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              209
                                                                                                                                                                                                                                   н
                                                                                                                                                                                                                                                                   18
                                                                                                                                                                                                                                                                                                                                     25
                                                                                                                                                                                                                                                                                                                                                                                                        95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              580
                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                    36
                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                      75
                                                                                                                                                                                                                                                                                                                                                                                       229
                                                                                                                                                                                                                                                                                                                                                                                                                         286
                                                                                                                                                                                                                                                                                                                                                                                                                                                         343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             520
                                                                                                                                                                                                                                                                                                                                                                                                                                          114
                                                                                                                               ORIGIN
                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6 B 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
```

DEFINITION ACCESSION VERSION KEYWORDS SOURCE ORGANISM

RESULT 8 AY056788

REFERENCE AUTHORS

TITLE JOURNAL REFERENCE AUTHORS

TITLE JOURNAL

COMMENT

609

588

셤 ò 셤 8

```
/ protein_id="AALIOV".

/ protein_id="AALIOV".

/ protein_id="AALIOV".

/ protein_id="MALIOV".

/ prot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AspalaTyrTyrValProProProProProGlyProLysAlaGlyGlyProTyrGly 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    95 ProProThr --- ArgAsnProProSerValProGlyProProSerAsnProSerArg 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cecreaaacerceaagecercearereraaceaagaceaceaacacreerca--- 378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  37 ATGTCCACAGGGGCGTCTCCAGGCACTACTCCATCACCATCTCCACGGTCTCCTCCCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AACTCGACAACCACCACTCCTCCTCCAGCAGCCTCTTCTCCTCCTCCCACCACAACTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeubroGlnProSerProProAlaProThrThrProGlySerProProAlaProValThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MetSerSerAlaProSerProGlyThr-----GlySerProProSerProProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AsnSerThrThrThrProProProAla-----SerAlaProProThrThrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SerSerProProPro---ProSerThr1leProThrSerProProSerSerArgSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          55 ThrProSerAlaProProProSerProProThrProSerThrProGlySerProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GluGlyGlySerProArgProProSerSer-----ProSerProProSerProSerSerSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----GGATCTACTCCTAGAACTCCATCAAACACTAAAACGGTCGCCGCCGTCTGATTCTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AspGlyLeuSerThrGlyValValValGlyIleAlaIleGlyGlyValAlaLeuLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2116
574
24
41
21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCTCCTTCTTCTTCTCCTCCTCCTCCTGGATCTTTAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                /note="putative protein kinase"
   /clone="RAFL09-19-J24 (R14362) "
                                                                                                                                                           /codon_start=1
/product="AT3g24550/MOB24_8"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-086-464-2 (1-647) x AY056788 (1-2116)
                          /ecotype="Columbia"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1996. .2116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1.3e-63
2936.50
90.61%
86.97%
85.04%
                                                                                                 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3'UTR
ORIGIN
                                                            5'UTR
CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ሯ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ⋧
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Uridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids; eurosida II; Brassicates; Brassicaceae; Arabidopsis.

CB (hases 1 to 2116)

RS Cheuk, R., Chen, H., Kim, C.J., Koesema, E., Meyers, M.C., Banh, J., Bowser, L., Carninci, P., Dale, J. M., Goldsmith, A.D., Hayashizaki, Y., Rawai, J., Lam, B., Lee, J.M., Goldsmith, A.D., Hayashizaki, Y., Kawai, J., Lam, B., Lee, J.M., Lin, J., Lin, S.X., Miranda, M., Narusaka, M., Nguyen, M., Ondera, C.S., Palm, C.J., Pham, P.K., Ouach, H.L., Sakurai, T., Satou, M., Seki, M., Southwick, A., Tang, C.C., Davis, R.W., Theologis, A. and Ecker, J.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2 (Dases I to 2116)
Cheuk, R., Chen, H., Kim, C.J., Koesema, E., Meyers, M.C., Banh, J.,
Cheuk, R., Chen, H., Kim, C.J., Koesema, E., Meyers, M.C., Hayashizaki, Y.,
Ishida, J., Jang, P.X., Jones, T., Kamiya, A., Karlin-Neumann, G.,
Kawai, J., Lam, B., Lee, J.M., Lin, J., Liu, S.X., Miranda, M.,
Marusaka, M., Nguyen, M., Onodera, C.S., Palm, C.J., Pham, P.K.,
Quach, H.L., Sakurai, T., Satou, M., Seki, M., Southwick, A., Tang, C.C.,
Toriumi, M., Yamada, K., Yamamura, Y., Yu, G., Yu, S., Shinozaki, K.,
Direct Submission
Submitted (II-SEP-2001) Salk Institute Genomic Analysis Laboratory
Submitted (II-SEP-2001) Laboratory, The Salk Institute for
Biological Studies, 10010 N. Torrey Pines Road, La Jolla, CA 92037,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The Salk, Stanford, PGEC (SSP) Consortium members carried out the sequencing and annotation of the RAFL cDNAs: Cheu, R., Chen, H., Kim, C.J., Koesema, E., Meyers, M.C., Shinn, P., Banh, J. Bowser, L., Lam, C.J., Kooldsmith, A.D., Jiang, P. X., Jones, T., Karlin-Neumann, G., Dane, J. M., Lin, J., Liu, S.X., Miranda, M., Nguyen, M., Onodera, C.S., Palm, C.J., Phama, P.K., Quach, H.L., Southwick, A., Tang, C.C., Toriuni, M., Yamada, K., Yamamura, Y., Yu,G., Yu,S., Davis, R.W., Theologis, A., and Ecker, J.R.
                                                                                                                                                                                                                                                                                                                         1956
                                                                                                                                                                                                                                                             647
                                                                                                                                                                                                                                                                                                                                                                                                                                                          08-OCT-2001
                                                                                                                            627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RIKEN Genomic Sciences Center (GSC) members carried out the collection and clustering of RAFL cDNAs (RAFL cDNA : 'RIKEN atabidopsis Full-Length cDNA') : Seki,M., Narusaka,M., Ishida,J., Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai,J., Hayashizaki,Y. and Shinozaki,K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Cheuk, R. (SSP/Salk) and Seki, M. (RIKEN GSC) contributed equally this work. Shinozaki, K. (RIKEN GSC) and Ecker, J.R. (SSP/Salk) contributed equally to this work as PIs.
                                                                                                                                                                                                                                                  LysLysPheArgLysMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSer
                                        AsnProThrSerAspTyrGlyLeuTyrProSerGlySerSerSerGluGlyGlnThrThr
                                                                                                                                                                                         AATCCAACCAGTGACTACGGACTGTACCCGTCTGGTTCAAGCAGTGAAGGTCAAGCCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                   AYOS6788 2116 bp mRNA linear PLN 08-
Arabidopsis thaliana AT3g24550/MOB24_8 mRNA, complete cds.
AYOS6788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1. .2116
Coganisme=Arabidopsis thaliana"
/mol type="mRNA"
/db_xref="taxon:3702"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AYOS6788.1 GI:15983764
FLI CDNA.
Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (bases 1 to 2116)
```

156

54

35

96

216

74

321

94

264

435

131

495

151

555

source

FEATURES

627

607

647

8 g 6 6 6 6 6 6

g

8 8 8

8 & 8

8 6 8 6

8 8 8

g & 셤 ઠે g a

ઠે

g

ò

ò

d

ò

```
Eukaryota, Viridiplantee, Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; endicotyledons; core endicots; spermatophyta; Magnoliophyta; endicotyledons; core endicots; rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.

CB 1 (bases 1 to 2188)

RS Nguyen,M., Karlin-Neumann,G., Southwick,A., Lam,B., Miranda,M., Palm,C.J., Bowser,L., Jones,T., Banh,J., Carninci,P., Chen,H., Cheuk,R., Chung,M.K., Hayashizaki,Y., Ishida,J., Kamiya,A., Kawai,J., Kim,C., Lin,J., Liu,S.K., Marusaka,M., Pham,P.K., Sakrao,H., Sakrao,H., Sakrai,T., Satcou,M., Seki,M., Shinn,P., Yamada,K., Shinozaki,K., Ecker,J., Theologis,A. and Davis,R.W.

Libitect Submission

Libitect
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Arussyol 2188 bp mRNA linear PLN 04-NOV-2001
Arabidopsis thaliana protein kinase-like protein (MOB24.13) mRNA,
complete cds.
                                             1693 TTAGAAGGAAATGTATCGCTGTCTGATCTTAACGAAGGGATGAGATGAGGATGAGGATCACAGGAAC 1752
                                                                                                                                            Embryophyta; Tracheophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RIKEN Genomic Sciences Center (GSC) members carried out the collection and clustering of RAFL cDNAs (RAFL cDNA: 'RIKEN stabidopsis Full-Length cDNA'): Seki,M., Narusaka,M., Ishida,J., Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai,J., Hayashizaki,Y. and Shinozaki,K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The Salk, Stanford, PGEC (SSP) Consortium members carried out the sequencing and annotation of the RAFL cDNAs: Nguyen,M., Southwick,A., Karlin-Neumann,G., Lam,B., Mirzanda,M., Palm,C.J., Bowser,L., Jones,T., Bahh,J., Chen,H., Cheuk,R., Chung,M.K., Kim,C., Lin,J., Liu,S.X., Pham,P.K., Sakano,H., Shinn,P., Yamada,K., Ecker,J., Theologis,A. and Davis,R.W.
                                                                                                                                                                                                                    LysLysPheArgLysMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSer
                                                                                                                                                                                                                                                      LeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsn
                                                                                                                                                                                                                                                                                                                           AsnProThrSerAspTyrGlyLeuTyrProSerGlySerSerSerGluGlyGlnThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Nguyen, M, (SSP/Stanford) and Seki, M. (RIKEN GSC) contributed equally to this work. Shinozaki, K. (RIKEN GSC) and Davis, R.W. (SSP/Stanford) contributed equally to this work as PIs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 e-mail for correspondence: arab@sequence.stanford.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="This clone is in pBluescript"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               organism="Arabidopsis thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FLI CDNA.
Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /clone="RAFL09-06-A17"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /mol_type="mRNA"
/db_xref="taxon:3702"
/chromosome="III"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1. .2188
/gene="MOB24.13"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AY059901.1 GI:16649062
                                                                                                                         ValTyrSerSerTy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AY059901
                                                                                                                         268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1933
                     548
                                                                                                                                                                                                                            588
                                                                                                                                                                                                                                                                                                                              608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 9
AY059901
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          요
                                                       쉽
                                                                                                          ∂
                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                   유
                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGTAGTGGTCAGGGAGAGAGAGAGTTTCAGGCTGAGGTTGAGATCATTAGCAGAGTTCAT 1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCAAGTGGAAAGCTCACAGAAAAGTCTGACGTTTTCTCATTTGGCGTTGTACTTTTGGAA 1452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                547
                                                                                                                                                                                                    732
                                                                                                                                                                                                                                                      247
                                                                                                                                                                                                                                                                                                      792
                                                                                                                                                                                                                                                                                                                                                        267
                                                                                                                                                                                                                                                                                                                                                                                                           852
                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlyGlyPheGly 287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TyrvalHisLysGlyvalLeuProSerGlyLysGluvalAlavalLysGlnLeuLysVal 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TATGTGCATAAAAGGTATATTGCCTAGTGGGAAAGAAGTTGCTGTGAAACAGTTGAAAGCT 972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 327
                                                                               GlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TyrGlupheValProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CATGAAGATTGCAATCCGAAAATCATTCACCGTGATATTAAGGCGTCAAACATATTGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGCCTTGTGTTCGCCATTCAGCTCGCCGCAGACCTCGCATGAGCCCAGATAGTACGGGCG
GCTGCTTACTATGTTCCTCCTCCTCCATCTGGTCCCAAAGCTGGAGGACCTTACGGT
                                                                                                                                                 ThrSerLeuProProProLysAlaProSerProProArgGlnProProProProPro
                                                                                                                                                                            ProProPro---PheMetSerSerSiyGlySerAspTyrSerAspArgProValleu
                                                                                                                                                                                                                                                                              ProProProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGlu
                                                                                                                                                                                                                                                                                                                                                                                   CCTCCACCATCTCCCAGGGCTTGTGTTTCTAAAAGCACTTTCATATAGAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTGTCGAGAGCTACTAATGGCTTCTCTGAGGCTAATTTGTTAGGACAAGGAGGTTTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HisarghisteuvalSerteuvalGlytyrCyslleAlaGlyAlaLysArgLeuteuval
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MetGluTrpSerThrArgLeuLys1leAlaLeuGlySerAlaLysGlyLeuSerTyrLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HisGluAspCysAsnProLysIleIleHisArgAspIleLysAlaSerAsnIleLeuIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AspPheLysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GATTICAAATTIGAAGCTAAGGTIGCTGACTTIGGTCTIGCCAAGATIGCTICTGATACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AlaSerGlyVysLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LeulleThrGlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTTATTACTGGGGGCGCCCTGTTGATGCGAACAATGTCTATGTAGATGACAGCTTAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AspalalysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaAlaCysValArgHisSerAlaArgArgArgProArgMetSerGlnIleValArgAla
                                             GlyGlnGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAsp---HisValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1453
                                                                                                  919
                                                                                                                                                 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                528
                                                                                                                                                                                                    919
                                                                                                                                                                                                                                                      229
                                                                                                                                                                                                                                                                                                      733
                                                                                                                                                                                                                                                                                                                                                        248
                                                                                                                                                                                                                                                                                                                                                                                                           793
                                                                                                                                                                                                                                                                                                                                                                                                                                                          268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 308
```

```
HisarghisLeuvalSerLeuvalGlyTyrCysIlealaGlyAlaLysArgLeuLeuval
                                                                                                                                                                                                                                                                                                                                                        TTAGAAGGAAATGTATCGCTGTCTGATCTTAACGAAGGGATGAGACCGGGTCACAGCAAC
                                                                                                                                                                                          GGTAGTGGTCAGGGAGAGAGAGAGTTCAGGCTGAGGTTGAGATCATTAGCAGAGTTCAT
                                                                                                                                                                                                                                                             CTTATTACTGGGAGGCGCCCTGTTGATGCGAACAATGTCTATGTAGATGACAGCTTAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsn
           ThrSerLeuProProProLysAlaProSerProProArgGlnProProProProPro
                    GlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHis
                                                                                                                                                                                                                                                    TyrGluPheValProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThr
                                                                                                                                                                                                                                                                                       MetGluTrpSerThrArgLeuLysIleAlaLeuGlySerAlaLysGlyLeuSerTyrLeu
                                                                                                                                                                                                                                                                                               HisGluAspCysAsnProLysIleIleHisArgAspIleLysAlaSerAsnIleLeuIle
                                                                                                                                                                                                                                                                                                                                  ABNThrHigValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAla
                                                                                                                                                                                                                                                                                                                                                                                                           aacactcargratcracacecereareseaaccrrreserarrreserecesaararecr
                                                                                                                                                                                                                                                                                                                                                                                                                                                              LeulleThrGlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaAlaCysValArgHisSerAlaArgArgArgProArgMetSerGlnIleValArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGGCTTGTGTTCGCCATTCAGCTCGCCGCAGACCTCGCATGAGCCAGATAGTACGGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AspalaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAla
          503
                          671
                                           229
                                                            728
                                                                             248
                                                                                              788
                                                                                                               268
                                                                                                                              848
                                                                                                                                               288
                                                                                                                                                                908
                                                                                                                                                                                 308
                                                                                                                                                                                                  968
                                                                                                                                                                                                                   328
                                                                                                                                                                                                                                   1028
                                                                                                                                                                                                                                                    348
                                                                                                                                                                                                                                                                      1088
                                                                                                                                                                                                                                                                                       368
                                                                                                                                                                                                                                                                                                       1148
                                                                                                                                                                                                                                                                                                                        388
                                                                                                                                                                                                                                                                                                                                        1208
                                                                                                                                                                                                                                                                                                                                                         408
                                                                                                                                                                                                                                                                                                                                                                          1268
                                                                                                                                                                                                                                                                                                                                                                                           428
                                                                                                                                                                                                                                                                                                                                                                                                            1328
                                                                                                                                                                                                                                                                                                                                                                                                                            448
                                                                                                                                                                                                                                                                                                                                                                                                                                            1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                              468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   528
          8 8 8 8 8
                                                                                                                                         8 6 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                       CTTCCTCAACCTTCCCCCTCCGCTCCCATCACTCCT---TCTCCACCGTCTCCCACCACA 316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | IleValThrLeuIleCysLeuLeuCysLysLysLysArgArgArg-----AspGluGlu 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AspalatyrtyrValProProProProProGlyProLysalaglyGlyProTyrGly 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             670
                                                                                                                                                                                                                                                                                                                                                                                                                                    ProProThr -- - ArgAsnProProProSerValProGlyProProSerAsnProSerArg 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          550
                                                                                                                                                                                                                                                                                                                                                211
                                                                                                                                                                                                                                                                                                               151
                                                                                                                                                                                                                                                                         91
                                                                                                                                                                                                                                                                                                                                 54
                                                                                                                                                                                                                                                                                                                                                                 74
                                                                                                                                                                                                                                                                                                                                                                                                   94
                                                                                                                                                                                                                                                                                             AsnSerThrThrThrThrProProProAla-----SerAlaProProProThrThrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AspGlyLeuSerThrGlyValValValGlyIleAlaIleGlyGlyValAlaLeuLeuVal
                                                                                                                                                                                                                                                            -- ProSerThrIleProThrSerProProSerSerArgSer
                                                                                                                                                                                                                                                                                                                                             TCTTCTCCTCCTCCGTCGCCGTCAACTAATTCAACCTCTCCTCCTCTTTTTA
                                                                                                                                                                                                                                                                                                                                                               ThrProSerAlaProProProSerProProThrProSerThrProGlySerProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                             GluGlyGlySerProArgProProSerSer----ProSerProProSerSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ---GGATCTACTCCTAGAACTCCATCAAACACTAAAACGGCGCCGCCGCCGTTGATTCTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LeuProGlnProSerProProAlaProThrThrProGlySerProAlaProValThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyGlnGlnGlnTrpArgGlnGlnAsnAlaThrProproSerAsp---HisValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GATGGATTGTCTACCGGAGTTGTGGTAGGAATCGCCATTGGAGGAGTCGCTATTCTTGTT
                                                                                                                                                                               2188
574
24
41
21
                                                                                                                                                                               Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                            (1-2188)
32. 1990
/gene="MOB24.13"
/codon_start=1
                                                                                                                                                                                                                                            x AY059901
                                                                                                                                                                               1.33e-63
2936.50
90.61%
86.97%
85.04%
                                                                                                                                                                                                                                                                                                                                SerSerProProPro-
                                                                                                                                                                                                                                            (1-647)
                                                                                                                                                                                                Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                        Scores:
                                                                                                                                                                                                                                            US-10-086-464-2
                                                                                                                                                                                                                                                             Н
                                                                                                                                                                                                                                                                             32
                                                                                                                                                                                                                                                                                                             92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           170
                                                                                                                                                                                                                                                                                              18
                                                                                                                                                                                                                                                                                                                                36
                                                                                                                                                                                                                                                                                                                                                 152
                                                                                                                                                                                                                                                                                                                                                                 55
                                                                                                                                                                                                                                                                                                                                                                                 212
                                                                                                                                                                                                                                                                                                                                                                                                   75
                                                                                                                                                                                                                                                                                                                                                                                                                   260
                                                                                                                                                                                                                                                                                                                                                                                                                                   95
                                                                                                                                                                                                                                                                                                                                                                                                                                                     317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             611
                                                                                                                                                                                 . . No. :
                                                                                                                                                                        gnment
CDS
                                                                                                                                                       ORIGIN
```

셤

8 6 8 6 8 6 8 6 8 6 8 6 8 6 8 6


```
152 IleValThrLeuIleCysLeuLeuCysLysLyslysArgArgArgArg-----AspGluGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     30 ATGICCACAGGGGGGGGTCTCCAGGCACTACTCCATCACCATCTCCACGGTCTCCTCCCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    90 AACTCGACAACCACCACCTCCTCCAGCAGCCTCTTCTCCTCCTCCCACACCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SerSerProProPro---ProSerThr11eProThrSerProProSerSerArgSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuProGlnProSerProProAlaProThrThrProGlySerProProAlaProValThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTTCCTCAACCTTCCCCCTCCCGCTCCCATCTCCT---TCTCCACCGTCTCCCCACACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ProProThr --- ArgAsnProProProSerValProGlyProProSerAsnProSerArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cecreanacecrecanged and an accompanded and accordanged accorda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AspGlyLeuSerThrGlyValValValGlyIleAlaileGlyGlyValAlaLeuLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ThrSerLeuProProProLysAlaProSerProProArgGlnProProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AsnSerThrThrThrProProPla-----SerAlaProProThrThrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    55 ThrProSerAlaProProProSerProProThrProSerThrProGlySerProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      114 GluGlyGlySerProArgProProSerSer-----ProSerProProSerProSerSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             549 GCTGCTTACTATGTTCCTCCTCCTCCTCCACCTGGTCCCAAAGCTGGAGGACCTTACGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyGlnGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAsp---HisValVal
                                                                                                                                                                                                                                                                                                                                                                                                                             2190
574
24
41
21
                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (1-2190)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-086-464-2 (1-647) x AY093065
                                                                                                                                                                                                                                                                                                                                                                                                                        1.33e-63
2936.50
90.61%
86.97%
85.04%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                             Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          П
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                           Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AY093065.1 GI:20260331

FLI CDNA.

Arabidopsis thaliana (thale cress)

Arabidopsis thaliana

Eukaryota, Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;

rosids eurosids II; Brassicales; Brassicaceae; Arabidopsis.

I (Dases 1 to 2190)

Southwick, A., Karlin-Neumann, G., Nguyen, M., Lam, B., Miranda, M.,

Palm, C.J., Bowser, L., Jones, T., Banh, J., Carninci, P., Chen, H.,

Cheuk, R., Chung, M.K., Hayashizaki, Y., Ishida, J., Kamiya, A.,

Kawai, J., Kim, C., Lin, J., Liu, S. X., Narusaka, M., Pham, P. K.,

Sakano, H., Sakurai, T., Satou, M., Seki, M., Shinn, P., Yamada, K.,

Shinozaki, K., Ecker, J., Theologis, A. and Davis, R.W.

Libract Submission

Libract Submission

Stanford University, 855 California Avenue, Palo Alto, CA 94304,
                                                                                                                                                                                                                                                           1927
                                                                                                                                                                                                                                                                                                                                                                                                                                                            PLN 21-APR-2002
                                                                                                           607
                                                                                                                                                                                                          627
                                                                                                                                                                                                                                                                                                         647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RIKEN Genomic Sciences Center (GSC) members carried out the collection and clustering of RAFL cDNAs : 'RIKEN arabidopsis Full-Length cDNA'): Seki,M., Narusaka,M., Ishida,J., Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai,J., Hayashizaki,Y. and Shinozaki,K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Southwick, A., (SSP/Stanford) and Seki, M. (RIKEN GSC) contributed equally to this work. Shinozaki, K. (RIKEN GSC) and Davis, R.W. (SSP/Stanford) contributed equally to this work as PIS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            AY093065 2190 bp mRNA linear PLN 21-APR-?
Arabidopsis thaliana unknown protein (At3g24550) mRNA, complete
                                                                                                                                                                                                                                                                                                       ValTyrSerSerTyrGlyGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMet
                                 LyslysPheArgLysMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSer
                                                                                                                                     1808 ATABAGTTTAGGAAAATGGCTCTTGGAACTCAAGAATACGGCACAACGGCGGGTACAGT
                                                                                                                                                                                                          ABRPROTHRSerAspTyrGlyLeuTyrProSerGlySerSerSerGluGlyGlnThrThr
                                                                                                                                                                                                                                              The Salk, Stanford, PGEC (SSP) Consortium members carried out sequencing and annotation of the RAFL CDNAs: Southwick, A., Nguyen,M., Karlin-Neumann,G., Lam,B., Miranda,M., Palm,C.J., Bewser,L., Jones,T., Banh,J., Chen,H., Cheuk,R., Chung,M.K., Kim,C., Lin,J., Lin,S.Y., Pham,P.K., Sakano,H., Shinn,P., Yamada,K., Ecker,J., Theologis,A. and Davis,R.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          e-mail for correspondence: arab@sequence.stanford.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          pBluescript"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1. .2190
/organism="Arabidopsis thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /clone="RAFL07-12-E08 (R17522)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product="unknown protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /mol_type="mRNA"
/db_xref="taxon:3702"
/chromosome="3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /ecotype="Columbia"
/note="This clone i
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          30. .1988
/gene="At3g24550"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'gene="At3g24550"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AY093065
                                                             1748
                                                                                                              588
                                                                                                                                                                                                             809
                                                                                                                                                                                                                                                           1868
            999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 10
AY093065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                g
                                                                                                                                               g
                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                              d
                                                                                                                                                                                                                                                                                                         ò
                                                                                                         8
```

371 131

314

94

149

54

35

83

209

74

257

428

488

169 548 189 608 208 668 228

```
1116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            547
                                  228
                                                                          969
                                                                                                                247
                                                                                                                                                      756
                                                                                                                                                                                          267
                                                                                                                                                                                                                                816
                                                                                                                                                                                                                                                                      287
                                                                                                                                                                                                                                                                                                          876
                                                                                                                                                                                                                                                                                                                                                307
                                                                                                                                                                                                                                                                                                                                                                                    936
                                                                                                                                                                                                                                                                                                                                                                                                                        327
                                                                                                                                                                                                                                                                                                                                                                                                                                                              966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTAGAAGGAAATGTATCGCTGTCTGATCTTAACGAAGGGATGAGACCGGGTCACAGCAAC
                                    TyrValHisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysVal
                                                                                                                                                                                                                                                                                                                                                                      GlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTTATTACTGGGAGGGCGCCCTGTTGATGCGAACAATGTCTATGTAGATGACAGCTTAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGTCAACAACAGTATTGGCAACAACAAAAACGCGTCAGGCCGTCAGATAATCATGTAGTG
                                                                                                                                    LeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGly
                                                                                                                                                                                                                                                                                          genagregreacecacacacacacacrireacecreacetreacarearrangeacacacacar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | SArgHisLeuValSerLeuValGly7tyrCysIleAlaGlyAlaLysArgLeuLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TyrGluPheValProAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Met GluTrpSerThrArgLeuLysIleAlaLeuGlySerAlaLysGlyLeuSerTyrLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HisGluAspCysAsnProLys1leIleHisArgAspIleLysAlaSerAsnIleLeuIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AspAlaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsn
                                                                                                                  ProProPro---PheMetSerSerGerGlyGlySerAspTyrSerAspArgProValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LeulleThrGlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuVal
                                                                              ACGICATIG-
                                        돱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        H
                                                                                                                                                                                                                                                                                                          817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1597
    380
                                          209
                                                                            640
                                                                                                                  229
                                                                                                                                                        697
                                                                                                                                                                                              248
                                                                                                                                                                                                                                  757
                                                                                                                                                                                                                                                                        268
                                                                                                                                                                                                                                                                                                                                                  288
                                                                                                                                                                                                                                                                                                                                                                                      877
                                                                                                                                                                                                                                                                                                                                                                                                                            308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8 6 8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               $ 6 $ 6 $ 6 $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8 6 8 6 8
                                                                                                      6 6 6 6 6 6
                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                          8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ያ ያ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
  음 성 음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                        /product = "At 3g 44 600"
/do_xref = "GI : 30 72 54 92"
/do_xref = "GI : 30 72 54 92"
/do_xref = "GI : 30 72 54 92"
/example = "MSTAPSEGTTPS PREPERS PROPRITTE PROPRES PROGUSTA PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MetSerSerAlaProSerProGlyThr ----- GlySerProProSerProProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----SerAlaProProProThrThrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SerSerProProPro---ProSerThrIleProThrSerProProProSerSerArgSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 refrencereceredescentales de la refrence de la refre
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ThrProSerAlaProProSerProProProThrProSerThrProGlySerProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |||||
|------CCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LeuProGlnProSerProProAlaProThrThrProGlySerProProAlaProValThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProProThr - - - ArgAsnProProProSerValProGlyProProSerAsnProSerArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GluGlyGlySerProArgProProSerSer-----ProSerProSerProSerSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          --GGATCTACTCCTAGAACTCCATCAAACACTAAAACGTCGCCGCGGCGGTCTGATTCTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----AspGluGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCTGCTTACTATGTTCCTCCTCCTCCATCTGGTCCCAAAGCTGGAGGACCTTACGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyGlnGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAsp---HisValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IleValThrLeuIleCysLeuLeuCysLysLysLysArgArgArg
                                                                                                                                                                                                                                                                                                                                                                                                                          1959
573
25
41
21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCTCCTTCTTCTTCCTCCATCTCCTGGATCTTTAACT-
                                                                                                                                                                                                                                                                                                                                                                                                                            Length:
Matches:
Conservative:
Mismatches:
Indels:
    51"
    INI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AsnSerThrThrThrThrProProAla-
    ŗ
                                      kinase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (1-1959)
    1.8
    clone
                    1. .1959
/note="protein k
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BT008409
                                                                                                                                                                                                                                                                                                                                                                                                                            1.37e-63
2934.50
90.61%
86.82%
84.98%
    note="This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (1-647) \times
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                            Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-086-464-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  132
                                                                                                                                                                                                                                                                                                                                                                                                                                ..
No..
                        CDS
                                                                                                                                                                                                                                                                                                                                                                      ORIGIN
```

ò ద 8 6 B 6

8 8 8

임

ద ઠે

ò 8 ઠે 용

```
/ processing the state of the s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ProProThr --- ArgAsnProProProSerValProGlyProProSerAsnProSerArg 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       335 ATTCTCAACCTTCCCCTCCGCTCCCATCACTCCT---TCTCCACGGTCTCCCACACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     114 GluGlyGlySerProArgProProSerSer----ProSerProProSerProSerSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | IleValThrLeuIleCysLeuLeuCysLysLysLysArgArgArg-----AspGluGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ---GGATCTACTCCTAGAACTCCATCAAACACTAAAACCGTCGCCGCCGTCTGATTCTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGTCAACAACAGTATTGGCAACAACAAAACGCGTCACGGCCGTCAGATAATCATGTAGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerSerProPro---ProSerThrlleProThrSerProProSerSerArgSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ThrProSerAlaProProProSerProProThrProSerThrProGlySerProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LeuProGlnProSerProProAlaProThrThrProGlySerProProAlaProValThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyGlnGlnGlnGrpArgGlnGlnAsnAlaThrProProSerAsp---HisValVal
protein'
                                                                                                                                                                                                                                                                                                                                                                                                                       2257
573
25
41
21
                                                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             x AF370509 (1-2257)
                                                                                                                                                                                                                                                                                                                                                                                                                  1.52e-63
2934.50
90.61%
86.82%
84.98%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-086-464-2 (1-647)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                      Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                               ..
90
                                                                                                                                                                                                                                                                                                                                                                                                      Alignment
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          충
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                         1896
                                                                                                                                                                                                                                                                                                                                                                                                                                           AF370509
2257 bp mRNA linear PLN 30-APR-2001
Arabidopsis thaliana protein kinase-like protein (MOB24.13) mRNA,
Complete cds.
AF370509
AF370509.
AF370509.
AF370509.1 G1:13877616
FLI_CDNA.
Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                    1956
                                                                                                            607
                                                                                                                                                                                                          627
                                                                                                                                                                                                                                                                                                        647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryoth; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Wagnoliophyta; eudicotyledons; core eudicots; core eurosida; eurosida; eurosida; L. 225.)

Southwick, A., Karlin-Neumann, G., Nguyen, M., Lam, B., Miranda, M., Palm, C.J., Bowser, L., Jones, T., Banh, J., Carninci, P., Chen, H., Chen, H., Kim, C., Lin, J., Liu, S. X., Natusaka, M., Pham, P. K., Sakano, H., Sakurai, T., Satou, M., Seki, M., Shinn, P., Yamada, K., Shinozaki, K., Ecker, J., Theologis, A. and Davis, R., Direct Submission
Submitted (17-APR-2001) DNA Sequencing and Technology Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RIKEN Genomic Sciences Center (GSC) members carried out the collection and clustering of RAFL cDNAs (RAFL cDNA: 'RIKEN trabidopsis Full-Length cDNA'): Seki,M., Narusaka,M., Ishida,J., Satou,M., Kamiya,A., Sakural,T., Carninci,P., Kawai,J., Hayashizaki,Y. and Shinozaki,K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (SSP/Stanford) and Seki, M. (RIKEN GSC) contributed equally to this work. Shinozaki, K. (RIKEN GSC) and Davis, R. (SSP/Stanford) contributed equally to this work as PIS.

Location/Qualifiers

1. 2.257

/organism="Arabidopsis thaliana"
/mol_type="mRNA"
/db xref="taxon:3702"
/chromosome="III"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted (17-APR-2001) DNA Sequencing and Technology Center, Stanford University, 855 California Avenue, Palo Alto, CA 94304,
                                                                                                                                                                                                   GTATACAGCTCATATGGAGGAAGAACAAGACTATGACACGAGCCAATACAACGACGACGACGACATG
                 ValTyrSerSerTyrGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMet
                                                                                                          588 LysLysPheArgLysMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSer
                                                                                                                                       The Salk, Stanford, PGEC (SSP) Consortium members carried out sequencing and annotation of the RAFL cDNAs: Southwick, A., Karlin-Neumann, G., Nguyen, M., Lam, B., Miranda, M., Palm, C.J., Bowser, L., Jones, T., Bahl, J., Chen, H., Cheuk, R., Chung, M.K., Kim, C., Lin, J., Lin, S.Y., Pham, P.K., Sakano, H., Shinn, P., Yamada, K., Ecker, J., Theologis, A. and Davis, R.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          e-mail for correspondence: arab@sequence.stanford.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "This clone is in pBluescript"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /ecotype="Columbia"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             107. .2065
/gene="MOB24.13"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="MOB24.13"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note='
                                                             1717
                                                                                                                                                                                                          809
                                                                                                                                                                                                                                                       1837
                   999
                                                                                                                                                                                                                                                                                                                                                                                                                     AF370509
LOCUS
DEPINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
```

166

35

54

448

131 505

391

94

334

74

208

745 228

627

2062

647

a ò g 8 d

8

6 B 6 B 6 B 6

요 상

g ò

```
Duriect submassion

Submitted (11-MARO)

Malibu, CA 90265, USA

Malibu, CA 90265, USA

This clone sequence is one of 5,000 Ceres full-length cDNAs made available to TIGR and Genbank. The following quality assessment of this set was done by comparison with known proteins: two percent of this set was done by comparison with known proteins: two percent of the clones are estimated to be 5'-truncated; less than one percent are 3'-truncated; approximately two percent represent alternative splice variants, including unspliced introns and spliced exons; one frame shifts in a coding region. A sequence is considered to be 5'-truncated if it lacks the current of it lacks the translation initiation start (ATG). A sequence is considered to be 3'-truncated if it lacks the cut-translation intitiation start (ATG). A sequence are derived from the Ws or Laker ecotypes and therefore may contain polymorphisms when compared to sequences from Col-0. Genset carried out the library production and sequences from Col-0. full-length clones. Ceres, Inc. carried out the clustering of the constant of the constant of clones, and sequence assembly.
                                                                                                                               PLN 14-APR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Arabidopsis thaliana Caracian Propinta, Embryophyta, Tracheophyta, Eukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta, Spermatophyta, aganoliophyta, eudicotyledons, core eudicots, rosids, eurosids II; Brassicales, Brassicaceae, Arabidopsis.

1 (bases 1 to 2324)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Haas B.J., Volfovsky, N., Town, C.D., Troukhan, M., Alexandrov, N., Feldmann, K.A., Flavell, R.B., White, O. and Salzberg, S.L. Full-length messenger RNA sequences greatly improve genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Brover, V., Troukhan, M., Alexandrov, N., Lu, Y.-P., Flavell, R. and Feldmann, K.
                                                                                                                                                                                        1883 ATAAAGTTTAGGAAAATGGCTCTTGGAACTCAAGAATACGGCACAACCGGCGAGTACAGT
                  588 LysLysPheArgLysMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSer
                                                                                                    AsnProThrSerAspTyrGlyLeuTyrProSerGlySerSerGluGlyGlnThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Troukhan, M., Alexandrov, N., Lu, Y.-P., Flavell, R.
                                                                                                                                                                                                                                                                                                               AXUBYU24 2324 bp mRNA linear PLN 1
Arabidopsis thaliana clone 17909 mRNA, complete sequence.
AY089024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2324
570
26
42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Full-Length cDNA from Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       organism="Arabidopsis thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Genome Biol. 3 (6), RESEARCH0029 (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                      FLI CDNA.
Arabidopsis thaliana (thale cress)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref="taxon:3702"
/clone="17909"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                             AY089024.1 GI:21407798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2.45e-62
2885.00
90.30%
86.36%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2 (bases 1 to 2324)
Brover, V., Troukhan, Peldmann, K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (bases 1 to 2324)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   22088475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12093376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Scores:
                                                                                                           608
                                                                                                                                                                                                                                                                                                                                                 DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bource
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment S
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                        RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                           AY089024
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score:
                                                                                                                                                                                                                                    q
                                                    셤
                                                                                                                                               a
                                                                                           ે
                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                             1102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1822
                                                                                                                                                                                                                                                                                                                                    CATGAAGATTGCAATCCGAAAATCATTCACCGTGATATTAAGGCGTCAAACATATTGATT 1342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGGCTTGTGTTCGCCATTCAGCTCGCCGCAGACCTCGCATGAGCCAGATAGTACGGGCG 1762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTATACAGCTCATATGGAGGAAGCACAGACTATGACACGAGCCAATACAACGACGACATG 1882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HisArgHisLeuValSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuVal 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AlaSerGlyLysLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGlu 467
                                                                                                                             ProProProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGlu 267
                                                                                                                                                                                                                      287
                                                                                                                                                                                                                                                                  982
                                                                                                                                                                                                                                                                                                             TyrValHisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysVal 307
                                                                                                                                                                                                                                                                                                                                                                                                 GlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHis 327
                                                                                                                                                           CCTCCACCATCTCCAGGCTTGTGTTAGGCTTTTCTAAAAGCACTTTCATATAGAGGAG
                                                                                                                                                                                                                                             TATGAGTTTGTTCCAAACAACAACTTCTGAGTTTCACCTCCATGGTAAGGGACGGCCTACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1403 AACACTCATGTATCTACACGCGTGATGGGAACCTTTGGGTATTTGGCTCCGGAATATGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AlaAlaCysValArgHisSerAlaArgArgArgProArgMetSerGlnIleValArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ValTyrSerSerTyrGlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMet
ACGTCATTG---CCACCACCTAAGCCTCCATCTCCACCACGAAAACCTCCTCCGCCACCT
                                                                                    803 ccaccaccacricardagradcagregregricreacrarregarerrecegricir
                                                                                                                                                                                                                    LeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGly
                                                                                                                                                                                                                                                                                                                                                                                                                          1043 GGTAGTGGTCAGGGAGAGAGAGAGAGTTTCAGGCTGAGGTTGAGATCATTAGCAGAGTTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CACAGGCATTTGGTTTCTCTTATTGGTTATTGTATGGCCGGTGTTCAAAGATTACTTGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TyrGluPheValProAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MetGluTrpSerThrArgLeuLysIleAlaLeuGlySerAlaLysGlyLeuSerTyrLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1223 ATGGAATGGAGTACTAGATTGAAGATTGCTCTTGGATCTGCTAAAGGACTTTCATATCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HisGluAspCysAsnProLysIleIleHisArgAspIleLysAlaSerAsnIleLeuIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCAAGTGGAAAGCTCACAGAAAAGTCTGACGTTTTCTCTCATTTGGCGTTGTACTTTTGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LeulleThrGlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTTATTACTGGGAGGCGCCCTGTTGATGCAACAATGTCTATGTAGAAGACGCTTAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AspAlaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTAGAAGGAAATGTATCGCTGTCTGATCTTAACGAAGGATGAGACCGGGTCACAGCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       508
  746
                                                                                                                                  248
                                                                                                                                                                           863
                                                                                                                                                                                                                                                                                                                                                        983
                                                                                                                                                                                                                                                                                                                                                                                                 308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     568
                                             229
                                                                                                                                                                                                                      268
                                                                                                                                                                                                                                                                                                             288
```

g

음 장

8 6 6 6

යි යි

õ

셤 à 셤 g

ò

જ g ઠે us-10-086-464-2.rge

```
As Kaneko, T., Kato, Y., Nakamura, Y., Asamizu, E. and Tabata, S. Direct Submission

Linstituted (03-DEC-1998) Yasukazu Nakamura, Kazusa DNA Research

Linstitute, Department of Plant Gene Research; 1532-3, Yana,

Kisarazu, Chiba 292-0812, Japan (B-mail:ynakamu@kazusa.or.jp,

Address for correspondence: kaos@kazusa.or.jp,

Address for correspondence: kaos@kazusa.or.jp,

For the latest information on annotation of this clone, please see

http://www.kazusa.or.jp/kaos/cgi-bin/agd_graph.cgi?c=MOB4

Genes with similarity to proteins in the databases are described in

'product' or 'note' qualifiers. Genes that have no significant

protein similarity to proteins in the databases are described in

'product' or 'note' qualifiers. Genes that have no significant

protein similarity are described as 'unknown protein'.

The software programs used to predict genes include: Grail

[Informatics Group, Oak Ridg-National Laboratory,

http://compbio.orni.gov/Grail-1.3/),

RetGene2 (S.M. Hebsgaard, et al., CRS Technical University of

Denmark, http://www.cbs.dtu.dk/services/NetGene2/) and

SplicePredictor (Volker Brendel. Stanford University,

http://genmlinl.zool.iastate.edu/cgi-bin/sp.cgi).

Genes encoding tRNMs are predicted by tRNAscan-SE

(Sean Eddy, Washington University School of Medicine, St. Louis,

http://genome.wustl.edu/eddy/tRNAscan-SE

Location/Qualifiers

Jone is MXPS and the 3' clone is MSD24.

Location/Qualifiers

// Abyree="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADFORDIZELOKKOIVURAQSEIARIREEEENHHGGGDDDESEBEERBNDSDVNLSDE"
complement (join (3794. 4276, 4363. 4490, 4577. 4673,
6757. 5179, 5354. 5548, 5693. 5570, 6088. 6214, 6297. 6466,
6601. 6648, 6743. 6776, 6882. 7013, 7464. 7559, 7677. 7743,
8162. 8217, 8290. 8385, 8470. 8998, 9122. 9462)
//note="gene_id:MOB24.2"
                                                                                                                                                Kaneko,T., Katoh,T., Sato,S., Nakamura,A., Asamizu,E. and Tabata,S. Structural analysis of Arabidopsis thaliana chromosome 3. II. Sequence features of the 4,251,695 bp regions covered by 90 P1, TAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /trānslation="MORQRSILSFFOKPTRATTKGLVSGDAASGGGGSGGPRFWVKEG
DAKGDASVRFAVSKSVDEVRGTDTPPEKVPRRVLPSGFKPAESAGDASSLFSNIMHKF
VKVDDRDCSGERSREDVVPLNDSSLCMKANDVIPQFRSNNGKTQERNHAFSFSGRAEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VEGEEEDPQGGYIRGNERFQKRQKPNKVVSGFEFAGPSDAKVAYDWREQEAFVILLEVW
GDRFLQLGRRSLANEDWNEVAEKVSEBLAMEKSBTQCRRMIDDLKRKYRKEKIKVTRKEK
GLGSSKWSFFNKLDMLYVSPKSDLGLAGGVDSGEFVEWNTKYYLDXSNGFDEMDSP
GLGSSEKWSFRKKYNDNASYKMLADSVERFGKYYEKMEKSKER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    translation="MGDSEDETGYPKKFYSLNRQNHPMYSRPIPKRHAYYNEEEDEDE"
Eukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta, Spermatophyta, Magnoliophyta, eudicotyledons, core eudicots, rosids, eurosids II; Brassicales, Brassicaceae, Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                  2 (bases 1 to 79706)
Kaneko,T., Kato,T., Sato,S., Nakamura,Y., Asamizu,E. and Tabata,S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         evidence=not_experimental
produce=not_expair protein MutS"
protein_id="BAB01996.1"
db_xref="GI:9294039"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_gtart=1
/evidence=not_experimental
/protein_id="BAB01995.1"
db_xref="G1:9294038"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /clone="MOB24"
/clone_lib="Mitsui P1"
2398. ..3399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         'note="gene_id:MOB24.1
                                                                                                                                                                                                                                                                     and BAC clones
DNA Res. 7 (3), 217-221 (2000)
20363099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              db_xref="taxon:3702"
chromosome="3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    inknown protein"
                                                                                                                 (sites)
                                                                                                                                                                                                                                                                                                                                                                                   .0907853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                 REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                    JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                               PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
```

/ voucin beatc=1
/ vordence=not experimental
/ product="aldehyde dehydrogenase"
/ product="aldehyde dehydrogenase"
/ product="aldehyde dehydrogenase"
/ product="alba01998.1"
/ db_xref="alg1:92940198.1"
/ db_xref="alg1:92940198.1"
/ tanslation="MENGKCNGATTVKLPEIKFTKLFINGQFIDAASGKTFETIDPRN
/ translation="MENGKCNGATTVKLPEIKFTKLFINGQFIDAASGKTFETIDPRN
/ translation="MENGKCNGATTVKLPEIKFTKLFINGQFIDASGKTFETIDPRN
/ translation="MENGKCNGATYRPHGARAKLINKFADLIEBRIBELA
KLDAVDGGKLFQLGKYADIPAAGHFKNAGAAASHLKKYSLELGGKSPLL
INDADIDKAADLALGGFYNKGBICVASRVYURGIJAYAHLSKEAGIPDGVL
INDADIDKAADLALLGGFYNKGBICVASRVYURGIJYDKYVEKLIVKYSLELGGKSPLL
IFNDADIDKAADLALLGGFYNKGBICVASRVYURGIJAYDKYVEKLIVKYSLELGGKSPLL
IWVNCYFGFDLDCPYGGYKNSGNCRESGMDALDNYLGTKSVVMPLHNSPWM"
complement (join (1974.2. . . . 19933, 20400. . 20657)) QKLLARGYKYGRIEQLETEROALREWUGSISDASCAALGALLMQVSPREDATIONAL
QKLLARGYKYGRIEQLETEROALREWUGSISDASCAALGALLMQVSPREULYDSK
GLSREAGKALRKYTUTGSTAVOLAPVPQWVAGDTDAAGVRNIEBERGYFKGSESRNCA
GLOREAGYALLKYTUTGSTAVOLAPVPQWVAGDTDAAGVRNIEBERGYFKGSESRNCA
VOCINECDVALSALGELINHLSRLKLEDVLKHGDIFPYQVYRGCIR IDGQTWVNLEIF
NNSCDGGPSGTLYKYLDNCVSPTGKRLLRNWICHPLKDVESINKRLDVVEEFTANSES
MOTTGQTWHYLDELELLGATKSSYRSSASVLPALLGKKVLKQRVKAFGQIVKGFRSG
IDLILALQKESNMMSLLYKLCKLPILVGKSGLELFLSQFBATIDSDFPNYQNQDVTDE
NAFTLTILIEFFIRATOWSSYLHTISCLDVLRSFALAASLSAGSMARPYIFPESBAT
DQNQKTKGPILKIQGLMHPPAVAADGQLPVPNDILLGEARRSSGSIHPRSLLLTGPNM
GGRSTLLRAPCLANT FRQLGCYVPCBSCEISLVDTIFFLGASDRIMTGBSTFVRGCT
ETASVLQNATQDSLVILDERGCTFPFDGYALAYSVFRHLVBETQRAGIRANGGI
KRASHPROTSKHMACAFKSRSDYQPRGCDQDLVFLYRLTEGGACPESYGLQVALMAGI
RONOVETSKHMACAFKSRSDYQPRGCDQDLVFLYRLTEGGACPESYGLQVALMAGI /codon start=1
/codon start=1
/evidence=not_experimental
/portein id="BAB01991."
/db_xref="d1:9294042"
/translation="MTPLSISASPSPWPLLSPPLSSSSLNRAAPSIFSPFSRINHGF
SCSFIAVQRFALSRKTRKQLQVVAMAPEEEKLTRRNPLDFPIEWEREKPGRRPDIFPK
SCSFIAVQRFALSRKTRKQLQVVAMAPEEEKLTRRNPLDFPIEWEREKPGRRPDIFPK
join (23402. 23459, 23819. .24021)
/note="air"/display="air /voidence=not_experimental /protein_id="BAB02000.1" /brotein_id="BAB02000.1" /brotein_id="BAB02000.1" /brotein_id="WKNASIKLPILIFILVITSNLGABARKLIGVADVIVEGEAASPQ YGIIDENDTIANKSPSCKRDIDCTFCGRRGGFCNLILQKCEC1." complement(join(152945. 26640,26714. 26824,26914. 27012, 27119. .27224,27291. .27360,27436. .27583)) /note="contains similarity to ubiquitin conjugating enzyme" CGEKKEVNECTKFEWLESSRIRDANRRRPDDPLYDRKTLHIPPDVFKKMSASQKQYWS VKSEYMDIVLFFKVGKFYELYELDELGHKELDWKMTMSGVGKCRQVGISESGIDEAV /translation="MPSRYPGAVTQDWEPVVIHKSKQKSQDLRDPKAVNAALRNGVAV QTVKKFDAGSNKKGKSTAVPVINTKKLEESTEPAAMDRVKAEVRLMIQKARLEKKMSQ ADLAKÇINERTQVVQEYENGKAVPNQAVLAKMEKVLGVKLRGKIGK"

complement (join(11108. .11381,11467. .11528,11699. .11836,
11934. .12701,12161. .12334,12421. .12510,12718. .13104,
13653. .13765,14306. .14405))
/note="gene id:MOB24.4"
/codon_start=1 10131. .10577
/note="gene id:MOB24.3"
/note="gene id:MOB24.3"
/codon_gtart=1
/evidence=not_experimental
/product="ethylene-responsive transcriptional
coactivator-llike protein"
/db_xref="G1:9294040" gene id:MOB24.5 similar to unknown protein" /codon_start=1 /evidence=not_experimental /protein_id="BAB02001.1" DDYDTLFCLWHEIKSSYCVPK" gene id:MOB24.7" codon_start=1

CDS

COMMENT

CDS

CDS

SDS

52128

94

52185

131

52245

151

52305

169

52364

184

52424

52841

309

329

셤

ઠે

g à a

ઠે

8 8

289

52661

230

210

52721

249

52781

269

Thu

```
HisLeuValSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuValTyrGlu 349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PhevalProAsnAsnAsnLeuGluLeuHisLeuHisGlyGlu------ 363
                                                                                      ProProThr --- ArgAsnProProProSerValProGlyProProSerAsnProSerArg
                                                                                                               CCATCTCCAGGGCTTGTGTTAGGCTTTTCTAAAAGCACTTTCACTTATGAGGAGTTGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        --- do hr cracica de la composación del composación de la composación de la composación del composación de la composació
                                                                                                                                                                                                                                                                                                                                                  IleValThrLeuIleCysLeuLeuCysLysLysLysArgArg-----AspGluGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAACTICAIGAAATAAAAATCGAATAITTAACCATAGITGIICAAITCTGATACGAATIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTTTCAAACTTTACAGAGATTTGATGTTGTTTATCAGCTGGAGGACCTTACGGTGGTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LeuProProProLysAlaProSerProProArgGlnProProProProProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTG---CCACCACCTAAGCCTCCATCTCCACCACAAAACCTCCTCCGCCACCACCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCAGCATTCATGAGTAGCAGTGGTTGTTCTGACTATTCGGATCTTCCGGTTCTTCCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysValGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CATAAAGGTATATTGCCTAGTGGGAAAGAAGTTGCTGTGAAACAGTTGAAAGCTGGTAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGTCAGGGGAGAGAGAGAGTTTCAGGCTGAGGTTGAGATCATTAGCAGAGTTCATCACAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AspAlaTyrValProProProProProProGlyProLysAla-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTCAAATCTGATACTTGATTATGCATTGTTATCTGTTAAAGAGATTACCTTTGTGGAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----GlyGlyProTyrGlyGlyGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAsp---HisValValThrSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pro---PheMetSerSerSerGlyGlySerAspTyrSerAspArgProValLeuProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ProSerProGlyLeuValLeuGlyPheSerLyBSerThrPheThrTyrGluGluLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrVal
    LeubroGlnProSerProProAlaProThrThrProGlySerProProAlaProValThr
                                                                                                                                                                          GluGlyGlySerProArgProProSerSer----ProSerProProSerProSerSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHisHisArg
    75
                                                                                      95
                                                                                                                                                                            114
                                                                                                                                                                                                                                                                 132
                                                                                                                                                                                                                                                                                                                                                     152
                                                                                                                                                                                                                                                                                                                                                                                              52246
                                                                                                                                                                                                                                                                                                                                                                                                                                         170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   52485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         350
                                           52015
                                                                                                                                 52072
                                                                                                                                                                                                                     52129
                                                                                                                                                                                                                                                                                                          52186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    52306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        52365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               52425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         52545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              52605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    52662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        52722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            52782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                52842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       52902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             52962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  53022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8 6 8 6
    8 6
                                                                                                                 6 6 6 6 6
                                                                                                                                                                                                                                                                                                                                                                                요. 오 명
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8 8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8 6 8 6 8 6 8
                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 51906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
/evidence=not_experimental
/protein_id="BAB02002.1"
/db_xref="01:924045"
/tranblation="MSSLIAYLSLFSNPSPLLKLSRILSNLWLLVRTSTNIKRKRWCL
/tranblation="MSSLIAYLSLFSNPSPLLKLSRILSNLWLLVRTSTNIKRKRWCL
AIPIYHLHAPPLWKSSITMLLRFQSNVBPPTKRFBISLSRFPTLVAMSHGBTLLMD
TTSLFGLTRILMFSSASPHGONQCTFPPSPEMDASLSSSPYNSRHHDLHLSEGKL
GLQLVGLVLFGPLRYRNRISKNDPRLPLLKPREDLNYSLSIFGQSLYHLLASIDRGHH
TNHNBLVLIWLHKNSLRTLPLVSSRTFVTGFICLKNNGIMFPTPTSRWCDLCHPSATI
                                                               EKYAKVKADGCSTSLQI KNHGDEKSGESGNSVKL/KLTVESSLSI AHTVKRETAGRDEQ
BODGKRKAVVGFGEGNSFONDGI KRSRKLGLALPSQSQKACDLCGEBELTRGVSAAC
KENKKPNLNGKKLSIGLKQPCNDTLASFRTSAAKSDNNRLSKKLSLRSPLGENBEVSK
PEVLAQTDMKLEMNQNEDARSLRGEFENSVLEETSMABSI VVLDSDDSGQEEEERVSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                             CISPTHLGISFKQSCISSRVKAHISRISKEVPNLFEIITEPSPHALVVKGLKKIGIMI
TSPRSGUPYQBFPNLSHSYPLTTEFKQKRNIIKTESHDLQSGGRGNGHASSPWSDDYR
SFRNLLDLTPIVTHLLGDEQLQFLLVVSRTSALEPYSTSSRLTVTWILLSIDSFVED
PSTTRDLTCAIMPYSLWLKALMNFMSFHIIYHILVLGNASFNYVLNFVIFESLLLIFV
/trānslation="MAQAARLSLRMQKELKLLLSDPPHGASFPHLSSAANGSGDFSTF
STIDAQIEGPEDTVYANGIFNLKIQIPERYPFQPPIVSFATPIYHPNIDNSGRICLDI
LNLPPKGAWQPSLNISTVLTSMRLLLSEPNPDDGLMCEVSREYKYNRQTFDYKAREMT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MetSerSerAlaProSerProGlyThr -----GlySerProProSerProProSer 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AsnSerThrThrThrThrProProProAla----SerAlaProProThrThrPro 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      oin(32831. .33058,33143. .33907)

'note="contains similarity to heat shock transcription"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Thr ProSerAla ProProProSer ProProThr ProSer Thr ProGly Ser ProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SerSerProProPro---ProSerThrIleProThrSerProProSerSerArgSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        79706
573
23
43
337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      51967 ccrccircrecrccrccarcrcrcrcragarcrraacr--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                          simifar to unknown protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="gene_id:MOB24.10
unknown protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (1-79706)
                                                                                                                                                                                                 /note="emb|CAB79678.1
                                                                                                                                                      SRSRLSLAKRRVLKCRP"
                                                                                                                                                                                                                     gene_id:MOB24.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              39311. .39367))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
                                                                                                                                                                               .30168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   x AB020746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7.29e-55
2622.00
61.19%
58.83%
75.93%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-086-464-2 (1-647)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     51787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                51907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           51847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pred. No.:
                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
```

10.000	Db 54161 GTTTTGTGAGAAAGATCGGTTCAGTTATGTTCTTATGCCTAGCCCTACTTTTGTTACC 54220 Qy 542	.4401 576 596 596 616 616 636 636		AUTHORS AUTHORS AUTHORS AUTHORS Aurobiological Sciences Rice Full-Length cDNA Project Team: Kikuchi, S., Satoh, K., Nagate, T., Kawagashira, N., Doi, K., Kikuchi, S., Satoh, K., Nagate, T., Kawagashira, N., Doi, K., Kishimoto, N., Yazaki, J., Ishikawa, M., Yamada, H., Doka, H., Kishimoto, N., Yazaki, T., Ohneda, E., Yahagi, W., Suzuki, K., Li, C., Ohtsuki, K., Shishiki, T., Founda, E., Yahagi, W., Suzuki, K., Li, C., Iida, Y., Sugano, S., Fujimura, T., Suzuki, Y., Tsunoda, Y., Kurosaki, T., Kodama, T., Mazuno, K., Yokomizo, S., Nikura, J., Kusumegi, T., Oka, M., Wazuno, K., Yokomizo, S., Nikura, J., Kusumegi, T., Oka, M., Ravamata, M., Matsubara, K., Riken, Kawai, J., Carninci, P., Adachi, J., Alzawa, K., Arakawa, T., Fukuda, S., Hara, A., Hashidume, W., Mayazaki, A., Osta, N., Ota, T., Kagawai, J., Konno, P., Alzawa, K., Shinagawa, A., Shiraki, T., Yoshino, M. and Hayashizaki, Y. TITLE JOURNAL JOURNAL JOHOTHAL JOHOTHAL
6868686868686868686868686868686868686	363	392AanProLysileileHisArgAspileLysAlaSerAsnileLeuileAs 408 53321 ATTGCAGCAATCCAAACATTCACCGTGATATTAAGGCTCAAACATTGATTG	441	#89 53801 TACTTTACTATGACTGCAGATAATCTAAACTTCTGATTTTCTACAATTTAACTGTTGAC 5386 490

22

156

23

216

23

----GCG 324

TITLE JOURNAL

COMMENT

88

```
325 ACACCGCCTCCGGCTAACCAGACGGCGGCCCACCTCCGGCGAGCAACACTCGTCGTCG 384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGCGGGGCCGGGCTCTTGTCTCCGCCCTGACG---CCTCCGGCAGCGCCATCG 441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProProSerAsnProSerArgGluGlyGlySerProArgProProSerSerPro---Ser 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCGCCGCGCGCGTCGACCTCGGGGCTGACGACGCCCGTGGTGGGGATCGTGGTGGGC 534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----TCACCTGGTGCTGCATTGGGTTTTTCAAGGTGTACTTTCACTTATGAGGAC 927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProProAlaPro-----ValThrProProThrArgAsnProProSerValProGly 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProProSerProSerSerAspGlyLeuSerThrGlyValValValGlyIleAlaIleGly 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyValAlaLeuLeuValIleValThr----LeuIleCysLeuLeuCysLysLysLys 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----ValProProProProProGlyProLysAlaGlyGlyProTyrGlyGlyGln 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        655 CACCCGCCGCCGCCGCCGCCCCCCCCGCCGTTCAAAGGGGATCACTATGGTGGGGTG 714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          192 GlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAspHisValValThrSerLeu 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----AAGAAGGTGCCTTCGCATCCTTCCCCTCCACCACCTCCTGCTCCACTAAAT 816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                817 GTACACAĞİGGIGGITCIĞĞCİCAAATİACİCĞGIĞGGGGACAACAĞCCAACCICIAĞIĞ 876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ProProProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGlu 267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----SerThrProSerAlaProProProSerProProThrProSerThrProGly 70
                                                                                                                                                                                                                                                                                                                                                               ----ATCCGCTCCAATTCCCCACCACCACCA.
                                                                                                                                                                                                                                                        ------rcaccaccaccaccacaaaaacrcrrccrgcrcrrtcrrcc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ProProProProLygAlaProSerProProArgGlnProProProProProProProPro
       SerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThrThr
                                                                                                         ThrProProProAlaSerAlaProProProThrThrProSerSerProProProPerser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SerProProProLeuProGlnProSer----ProProAlaProThrThrProGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PhemetSerSerSerGlyGlySerAspTyrSer------AspArgProValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            715 TACCAAAATTGGCAGCAAAATGGTCCTCCACCTCCACCTGATCATGTGCTG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                277 GIGGCGATGTCGTCGCCGTCGTCGCCGCCGCCGGCTAACCAGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   164 ArgArgArgAspGluGluAspAla------
                                                                                                                                                                                                        ThrileProThrSerProProProSerSerArg-
                                                                                                                                                      ccccircaggrccca-----
                                                       7
                                                                                                                                                                                                           43
                                                                                                                                                                                                                                                             109
                                                                                                                                                                                                                                                                                                             23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    877
                                                                                                                                                                                                                                                                                                                                                                                                                 23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                          a
                                                                                            8 G
                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
Fujimura, T., Fukuda, S., Hanagaki, T., Hara, A., Hashizume, W., Hayashizaki, Y., Hayatsu, N., Hiramoto, K., Hiraoka, T., Horta, I., Iida, Y., Itada, R., Imamura, K., Horta, I., Iida, J., Iida, Y., Ikeda, R., Imamura, K., Imotani, K., Ishibiki, Y., Ishikawa, M., Itoh, M., Kagawa, I., Kanagawa, S., Katoh, H., Kawagashira, N., Kawai, J., Kawamata, M., Kikuchi, S., Kishikawa, Hirozane, T., Kishimoto, N., Kobashi, M., Kojima, Y., Kojima, Y., Kojima, Y., Kojima, Y., Kojima, Y., Mondo, S., Konno, H., Rouda, M., Koya, S., Kurihara, C., Kurosaki, T., Mura, J., Miyazaki, A., Masuda, H., Marsubara, K., Matata, M., Nagata, T., Li, C., Lu, M., Masuda, H., Narikawa, K., Nurata, M., Nagata, T., Nakmura, M., Numasaki, R., Ohneda, E., Ohno, M., Ohtsuki, K., Nomira, K., Sakai, D., Sato, M., Sakai, C., Sakai, Shinagawa, A., Suroki, Y., Sasaki, D., Sato, K., Satoh, K., Shibata, K., Shinagawa, A., Suzuki, K., Sazaki, D., Sato, K., Satoh, K., Shibata, K., Sugukama, A., Suzuki, K., Sazaki, D., Sato, M., Tagami, M., Tagami, T., Tagawa, A., Takahashi, F., Takaku-Akahira, S., Tanaka, T., Tomaru, A., Yamada, Y., Ueda, M., Waku, K., Xie, Q., Yahagi, W., Yamada, H., Yamamoto, M., Yasunishi, A., Yazaki, J., Yokomizo, S. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Falls Genome Sequencing & Analysis Group: Otomo,Y., Iida,Y., Fulimura,T. Ikeda,R., Ishibiki,J., Kawamata,M., Kobayashi,M., Kodimura,T., Ikucasaki,T., Kusumegaj,T., Lui,M., Masuda,H., Miura,J., Mizuno,K., Narikawa,R., Nilukura,J., Oka,M., Ryu,R., Sugano,S., Sugiyama,A., Suzuki,Y., Tsunoda,Y., Ueda,M., Ryu,R., Sugano,S., Yoshimura,A., Masubara,R. and Murakami,K.
Genome Exploration Research Group in Riken Genomic Sciences Center and Genome Science Laboratory in Riken: Adachi,J., Aizawa,K., Akimura,T., Azakawa,T., Carninci,P., Fukuda,S., Hanamoto,K., Hara,A., Hashizume,W., Hayashida,K., Hayatsu,N., Hiramoto,K., Hirawoto,K., Hirawa,T., Azakawa,T., Kanagawa,Z., Katch,H., Kawai,J., Kanagawa,I., Kanagawa,S., Katch,H., Kawai,J., Kouda,M., Koya,S., Kurihara,C., Matauyama,T., Miyazaki,A., Murata,M., Nishi,K., Nomura,K., Numasaki,R., Ohno,M., Osato,N., Ota,Y., Tagami,M., Tagami,M., Tagami,Takeda,Y., Tagawa,A., Shizaki,T., Sogabe,Y., Tagami,M., Tagami,Takeda,Y., Tagawa,A., Takahashi,F., Takaku,Akahira,S., Tanaka,T., Tomaru,A., Toya,T., Waki,K., Yasunishi,A. and Hayashizaki,Y., Towaru,A., Toya,T., Waki,K., Yasunishi,A. and Hayashizaki,Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Direct Submission
Submitted (27-AUG-2002) Shoshi Kikuchi, National Institute of
Strobiological Sciences, Department of Molecular Genetics, Head of
Laboratory of Gene Expression; 2-1-2 Kannondai, Tsukuba, Ibaraki
305-6602, Japan (E-mail:skikuchi@nias.affrc.go.jp,
Tel:81-29-838-7007, Fax:81-29-838-7007)
This clone is one of the 28K full-length cDNA clones from japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            rice.
URL: http://cdnaol.dna.affrc.go.jp/cDNA/
URL: http://cdnaol.dna.affrc.go.jp/cDNA/
NIAS Rice Full-Length cDNA Project Team: Kikuchi,S., Satch,K.,
Nagata,T., Kawagashira,N., Doi,K., Kishimoto,N., Yazaki,J.,
Ishikawa,M., Yamada,H., Ooka,H., Hotta,I., Kojima,K., Namiki,T.,
Ohneda,E., Yahagi,W., Suzuki,K., Li,C., Ohtsuki,K., Shishiki,T.
Yamamoto,M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1. .2307
/organism="Oryza sativa (japonica cultivar-group)
/mol_type="mRNA"
/cultivar="Nipponbare"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2307
386
75
138
117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /db_xref="taxon:39947"
/clone="J033123K23"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4.03e-37
1841.50
64.39%
53.91%
53.33%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Yoshimura, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Scores:
```

654

231

287 987 TyrValHisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysVal 307

TIGTCAGCGGCGACCGATGGATTCTCCGATGCTAATCTGCTCGGACAGGGCGGTTTTGGG

LeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGly

268 928 288

8 심 ò

(1-2307)

x AK103247

US-10-086-464-2 (1-647)

Best Local Si Query Match:

.. 80 ..

Score:

gnment

ORIGIN

FEATURES

---TyrTyr--- 173

8 8

8 6 B 6

```
1932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1992
1227
                                                                                                                                                                                                                                            1287
                                                                                                                                                                                                                                                                                        CATGAAGATTGCCATCCTAAGATCATTCACCGTGACATAAAGTCAGCAAATATTCTTCTT 1347
                                                                                                                                                                                                                                                                                                                                               ABITHRHISVALSETTHRANGVALMETGIYTHRPHEGIYTYNLEUALAPNOGIUTYRALA 447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ecrecrirereraceccarrerecacecceaceccaceareaeccaeerrererreree
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTCTTGGGATCATAC---AACAGCAAGAGTACGACACGGGCCATTACAATGAAGACCTG 1884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              607
                                                                                                                                                                                                                                                                                                                                                                                                                                             467
                                                                                                    347
                                                                                                                                                        TyrgluPheValProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThr 367
                                                                                                                                                                                                                 387
                                                                                                                                                                                                                                                                      | HisGluAspCysAsnProLysIleIleHisArgAspIleLysAlaSerAsnIleLeuIle 407
                                                                                                                                                                                                                                                                                                                             AspPheLysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThr 427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAla 507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     627
                                                                                                                                                                                                                MetGluTrpSerThrArgLeuLy81leAlaLeuGlySerAlaLy8GlyLeuSerTyrLeu
                                                                                                                                                                                                                                AspalaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaAlaCysValArgHisSerAlaArgArgArgProArgMetSerGlnIleValArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHis
                                                           GGGAGTGGCCAGGGAGAGCGTGAATTTCAGGCGGAGGTTGAGATTATCAGCCGGGTACAT
                                                                                                  HisArgHisLeuValSerLeuValGlyTyrCyslleAlaGlyAlaLysArgLeuLeuVal
                                                                                                                   CACAAGCATCTTGTAACATTGGTTGGTTATTGCATTTCTGGAGGGAAAGAGGTTGCTTGTC
                                                                                                                                                                           AlaSerGlyLysLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuIleThrGlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ValTyrSerSerTyrGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LystysPheArgtysMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AsnProThrSerAspTyrGlyLeuTyrProSerGlySerSerGerGluGlyGlnThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1288
                                                                                                                                                                                                                                                                                                                                                          1348
                                                                                                                                                                                                                                                                                                                                                                                                                  1408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1885
                                                                        1048
                                                                                                    328
                                                                                                                              1108
                                                                                                                                                          348
                                                                                                                                                                                     1168
                                                                                                                                                                                                                 368
                                                                                                                                                                                                                                            1228
                                                                                                                                                                                                                                                                        388
                                                                                                                                                                                                                                                                                                                                 408
                                                                                                                                                                                                                                                                                                                                                                                                                                              448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1993
                988
                                            308
                                                                                                                                                                                                                                                                                                                                                                                      428
```

8 6 8 6 8 6 8 6 8 6 8 6 8 6

Job time : 5988 secs

Search completed: April 25, 2004, 00:00:59

8 6 8 6

8 8

ò

```
Rice gene
P. patens
Rice gene
Rice gene
Arabidops
Arabidops
                                                                   Arabidops
Arabidops
Arabidops
Arabidops
                                                                                                                                      Rice gene
Arabidops
                                                                                                                                                                                                                                                                                          Rice gene
Arabidops
                                                                                                                                                                                                                                                                                                                           Arabidops
Arabidops
                                                                                                                                                                                                                                                                                                                                                                           Arabidops
Arabidops
A thalian
Arabidops
                                                                                                                                                                                                                                                                                                                                                                                                                                              Eucalyptu
Rice gene
Arabidops
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pinus rad
Rice gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rice gene
Arabidops
Arabidops
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   New proline-rich, extensin-like receptor kinase nucleic acids and polypeptides useful for increasing plant wounding or pathogen resistance,
                                                                                                                                                                                                                                                                                                                                                             Arabidops
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Arabidops
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rice gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Proline-rich extensin-like receptor kinase; PERK; resistance; plant; ds.
                 ACE3651

AAE77097

ACE36553

ACE36555

ACE36555

ACE36555

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE3020

AACE302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Aac40780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Aac45877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ALIGNMENTS
                                                                                                                                                                                                                                                                                                                         AAC42860
ABZ14106
AAC48560
                                                                                                                                                                                     AAH22557
ADA70647
ADA69478
                                                                                                                                                                                                                                                                        AAC48313
ADA70527
                                                                                                                                                                                                                                                                                                                                                                                                            AAL45905
AAC44847
                                                                                                                                                    AB213274
ADA70701
                                                                                                                                                                                                                                                                                                           AAC43040
                                                                                                                                                                                                                                       AAC43029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAC45877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAF77094 standard; DNA; 1944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18-AUG-2000; 2000WO-CA000966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99US-0149466P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Brassica napus PERK1 DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 2001-244305/25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   D, Silva N;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (GORI/) GORING D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (SILV/) SILVA N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO200114563-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19-AUG-1999;
13-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-MAR-2001
1507
1479.5
1479.5
1209.5
1209.5
1181
1181
839.5
839.5
816.5
805.5
                                                                                                                                                                                                                     793.5
782.5
775.5
775.5
                                                                                                                                                                                                                                                                                                                        769.5
769.5
766
                                                                                                                                                                                                                                                                                                                                                                           758.5
758.5
758.5
758.5
758.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                            754.5
744.5
744.5
740.5
740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 736.5
736
735
735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Goring
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAF77094
   Command line parameters:
-MODEL=frame+ p2n.model -DEV=xlp
-G-Cgn2_1/USPTO_spool_p/US10086464/runat_23042004_083014_5603/app_query.fasta_1.839
-G-Cgn2_1/USPTO_spool_p/US10086464/runat_23042004_083014_5603/app_query.fasta_1.839
-DB-N Geneseq_29Gan04 -OPMT=fastap -SUPFIX=rng -MINMATCH=0.1 -LOOPCL=0
-LIST=45 -DOCALIGN=200 -THR SCORE=pct -THR MAR=100 -THR MINE O -ALIGN=15
-MODB=LOCAL -OUTFMT=pto -NORM=ext -HEAPSIZE=500 -MINLEN=0 -MAXLEN=200000000
-USER=US10086464_@CGN_1 1_708_@runat_23042004_083014_5603 -NCPU=6 -ICPU=3
-NO_WMAP -LARGEQUERY -NEG_SCOREs=0 -WAIT -DSPBELOK=10 -LONGLOG
-DBV TIMEOUT=120 -WARN TIMEOUT=30 -THRRAD=1 -XGAPDP=10 -XGAPEXT=0.5 -FGAPOP=6
-FGAPEXT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Aaf77094 Brassica
Acf36548 B. napus
Acf36549 B. napus
Acf36557 A. thalia
Aac36968 Arabidops
Acf36554 O. sativa
Acf36555 G. mays P
                                                                                                                April 24, 2004, 18:28:17; Search time 604 Seconds (without alignments) 4550.636 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                       647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Description
                                                                                                                                                                                                   3453
1 MSSAPSPGTGSPPSPPSNST.....REMEMGKIKRTGQGYSGPSL
                                                                                                                                                                                                                                                                                                                                                                                             6747726
                   GenCore version 5.1.6 (c) 1993 - 2004 Compugen Ltd.
                                                                                    nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                           Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                           3373863 segs, 2124099041 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACF36548
ACF36557
ACF36968
AAC36968
ACF36554
ACF36555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAF77094
                                                                                                                                                                                                                                                                     Xgapop 10.0 , Xgapext
Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      geneseqn2001as:*
geneseqn2001bs:*
geneseqn2002s:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       geneseqn2003as:*
geneseqn2003bs:*
geneseqn2003cs:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          geneseqn2004s:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Geneseq_29Jan04:*
Geneseqn1980s:*
Geneseqn1990s:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    geneseqn2000s:*
                                                                                                                                                                                                                                                                                                                                                                                                                            seq length: 0
seq length: 200000000
                                                                                                                                                                                       US-10-086-464-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1944
1944
2189
1959
2324
1812
1515
                                 Copyright
                                                                                                                                                                                                                                                      BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query
Match 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3453
3453
3453
2936.5
2885
1821.5
1668
                                                                                                                                                                                                     Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score
                                                                                                                                                                                                                                                      Scoring table:
                                                                                    OM protein
                                                                                                                                                                                                                                                                                                                                                                                                                            Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Jatabase :
                                                                                                                                                                                                                        Sequence:
                                                                                                                                                                                                                                                                                                                                                           Searched:
                                                                                                                    Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Result
```

340

320

280 840 300

780

1080

360

1200

400

1260

420

1320

460

480

440

```
TACTTGGCTCCGGAATACGCTGCAAGCGGAAAGCTCACGGAGAAGTCTGACGTTTTCTCA 1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGCCAGTACAATGAAGACATGAAGAAGTTTAGGAAAATGGCACTTGGAACTCAAGAGTAC 1800
                                                                                                                                                                                                                                          ATGAGACCAGGTCAAAGCAATGTATACAGCTCATACGGAGGAGGAAGCACCGATTATGACTCG
                                          GAGATCATCAGCAGAGTTCACCACAGGCATCTGGTGTCTCTTGTTGGTTATTGCATCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                              GCTAAGATTGCTTCTGATACAAACACGCATGTATCAACACGTGTGATGGGAACCTTTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TATGTAGATGACAGCTTAGTTGACTGGCACGACCATTGCTTAACCGAGCATCTGAGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATGAGCCAGATTGTGCGTGCGTTAGAAGGAAATGTATCACTGTCAGATCTTAACGAAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AsnAlaThrGlyGluTyrSerAsnProThrSerAspTyrGlyLeuTyrProSerGlySer
                                                                                                                                                   CATGGCGAGGGACGCCTACAATGGAATGGAGCACCAGATTGAAGATTGCTCTTGGATCT
                                                                                                                                                                                                                                                                                                                        AlaLysGlyLeuSerTyrLeuHisGluAspCysAsnProLys1leIleHisArgAspIle
                                                                                                                                                                                                                                                                                                                                      GCTAAAAGGACTTTCTTATCTTCATGAAGATTGCAATCCTAAAATCATTCACCGTGATATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  rriegcerrerecririrgascricarracresacercsacerreareccaacaarere
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TyrvalAspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGluGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AlaArgMetValAlaCysAlaAlaAlaCysValArgHisSerAlaArgArgArgProArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTCGCATGGTTGCTTGTGCTGCGGCTTGTGTTCGCCATTCAGCTCGCCGCAGACCTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MethrgProGlyGlyGlnSerAsnValTyrSerTyrGlyGlyGlySerThrAspTyrAspSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SerGlnTyrAsnGluAspMetLysLysPheArgLysMetAlaLeuGlyThrGlnGluTyr
**SerAspArgProValLeuProProProSerProGlyLeuValLeuGlyPheSerLys
        LeuGlyGlnGlyGlyPheGlyTyrValHislysGlyValLeuProSerGlyLysGluVal
                                                                                                               TTAGGACAAGGCCGGTTCGGTTACGTGCACAAGGTGTGCTTGCCTAGTGGGAAAGAAGTT
                                                                                                                                     AlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluVal
                                                                                                                                                                                                                                                                            HisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySer
                                                                                                                                                                                                                                                                                                                                                                   LysAlaSerAsnileLeuileAspPheLysPheGluAlaLysValAlaAspPheGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                  AlaLysileAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MetSerGlnIleValArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGly
                                                                                                                                                                                  GlullelleSerArgValHisHisArgHisLeuValSerLeuValGlyTyrCyslleAla
                                                                                                                                                                                                                                                                                                                                                                                  AAGGCTTCAAACATATTGATAGATTTCAAGTTTGAAGCTAAAGGTTGCTGATTTTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                               TyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1381
                                            261
                                                                                          281
                                                                                                                841
                                                                                                                                      301
                                                                                                                                                             901
                                                                                                                                                                                                          961
                                                                                                                                                                                                                                 341
                                                                                                                                                                                                                                                      1021
                                                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                   1081
                                                                                                                                                                                                                                                                                                                          381
                                                                                                                                                                                                                                                                                                                                                 1141
                                                                                                                                                                                                                                                                                                                                                                      401
                                                                                                                                                                                                                                                                                                                                                                                             1201
                                                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                                          1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      601
 241
                     721
                                                                   781
                                                                                                                                                                                    321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3 8 3 8
                                                                                                                                                       8 & 8
                                                                                                                                                                                                                        2 8 2 8
                                                                                                                                                                                                                                                                                                                    8 8 8
                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                  6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            엄
 8 8 8
                                                            셤
                                                                                       ò
                                                                                                         원장
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                    The present invention relates to proline-rich extensin-like receptor kinase (PERK). The PERK nucleic acids and polypeptides are useful for increasing the resistance of plants to wounding and pathogens. These are also useful for producing transgenic plants with increased wounding and pathogen resistance compared with a wild type plant, as well as in assays for identifying and developing compounds to inhibit and/or enhance polypeptide function directly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          720
                                                                                                                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                                                                                                                            120
                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                     40
                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                               80
pathogen
                                                                                                                                                                                                                                                                                                                                    GlylleAlalleGlyGlyValAlaLeuLeuValIleValThrLeuIleCysLeuLeuCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .nProProProProProProProPheMetSerSerSerGlyGlySerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCACGGCAACCTCCTCCACCTCCACCGCCTTTCATGAGCAGCGGCGGCGGCTCCGAC
                                                                                                                                                                                                                                                                                        MetSerSerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThr
                                                                                                                                                                                                                                                                                                      ATGTCCTCGGCGCCGTCTCCGGGGACTGGTTCGCCTCCATCTCCACCATCAAACTCCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                ProSerProProThrProSerThrProGlySerProProLeuProGlnProSerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                    cearcrecaecaercraegeceggarerceaecrecrerereaecererea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ProProSerValProGlyProProSerAsnProSerArgGluGlyGlySerProArgPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCACCTTCAGTCCCAGGACCACCGTCCAATCCTTCACGGGAAGGAGGAGTCTCCTCGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ProSerSerProSerProProSerProSerSerAspGlyLeuSerThrGlyValValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCATCTTCTCCCTCGCCGCCGTCTCCTTCTTCCGACGGTTTATCAACAGGAGTGGTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGAATCGCCATCGGAGGAGTCGCTCTGCTTGTGATAGTGACTCTGATTTGTCTCCTCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LysLysLysArgArgArgAspGluGluAspAlaTyrTyrValProProProProProPio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAGAAGAAAGAACGACGAAGAAGAAGAAGATGCTTACTATGTTCCTCGCCACCTCCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlyProLysAlaGlyGlyProTyrGlyGlyGlnGlnGlnGlnTrpArgGlnGlnBnAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGTCCCAAAGCCCGGAGCTTACGGTGGACAGCAGCAACAATGGCGGCAACAAAAACGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ThrProProSerAspHisValThrSerLeuProProProProLysAlaProSerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACACCACCGTCAGATCATGTCGTGACGTCACTACCACCACCACCTAAGGCTCCATCTCCA
 or
                                                                                                                                                  Other;
 wounding
                                                                                                                                                 0 ; D
                                                                                                                                                                                  1944
647
0
0
0
 increased
                                                                                                                                                                                  Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                  0
                                                                                                                                                  ::
                                                                                                                                                  471
 with
                                                                                                                                                   ö
                                                                                                                                                                                                                                                                   (1-1944)
                                                                                                                                                   C; 459
 plants
                                  1; 91pp; English
                                                                                                                                                                                                                                                                   x AAF77094
                                                                                                                                                   BP; 464 A; 550
                                                                                                                                                                                    4.62e-93
3453.00
100.00%
100.00%
 transgenic
                                                                                                                                                                    Alignment Scores:
Pred. No.:
Score:
Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                   (1-647)
 producing
                                                                                                                                                   Sequence 1944
                                Claim 6; Fig
 or for prod
resistance.
                                                                                                                                                                                                                                                                   US-10-086-464-2
                                                                                                                                                                                                                                                                                                                                                                                  41
                                                                                                                                                                                                                                                                                        Н
                                                                                                                                                                                                                                                                                                             н
                                                                                                                                                                                                                                                                                                                                       21
                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      221
                                                                                                                                                                                                                                                                                                                                                            19
                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  541
 8 6 8 6 8 6 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8 8
                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                    8 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                음 상 음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
```

1560

1620

540

1500

1740

620

1680

ò

ò

```
CCATCTTCTCCCTCGCCGCCGTCTCCTTCTTCCGACGGTTTATCAACAGGAGTGGTGGTG
                                                                                                                                                                                                                ProAlaProThrThrProGlySerProProAlaProValThrProProThrArgAsnPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProProSerValProGlyProProSerAsnProSerArgGluGlyGlyGerProArgPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ThrProProSerAspHisValValThrSerLeuProProProProLysAlaProSerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ProArgGinProProProProProProProPheMetSerSerSerGlyGlySerAsp
                                                                                                                                                                                                                                                                                                ThrThrThrProProProAlaSerAlaProProProThrThrProSerSerProPro
                                                                                                                                                                                                                                                                                                                                                                              ProSerThrIleProThrSerProProProSerSerArgSerThrProSerAlaProPro
                                                                                                                                                                                                                                                                                                                                                                                                         CCATCCACTATTCCGACATCTCCTCCTCTTCTTCTCGCTCTACACCTTCTGCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ProSerProProThrProSerThrProGlySerProProProLeuProGlnProSerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ccarcreccaccaacreccarcracgecgggarcrecaccrecretrecreagecgrereca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCGCTCCAACTACGCCCGGATCTCCACCGGACCTGTTACTCCTCCTACTCGAAAACCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCACCTTCAGTCCCAGGACCACCGTCCAATCCTTCACGCGAAGGAGGATCTCCTCGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProSerSerProSerProSerProSerSerAspGlyLeuSerThrGlyValValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlyIleAlaIleGlyGlyValAlaLeuLeuValIleValThrLeuIleCysLeuLeuCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGAATCGCCATCGGAGGAGTCGCTTGCTTGTGATAGTGACTCTGATTTGTCTCTCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LysLysLysArgArgAspGluGluAspAlaTyrTyrValProProProProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAGAAGAAACGAAGAGAAGAAGAAGAAGATGCTTACTATGTTCCTCCGCCACCTCCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GlyProLysAlaGlyGlyProTyrGlyGlyGlnGlnGlnGlnTrpArgGlnGlnAsnAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGTCCCAAAGCCGGAGGACCTTACGGTGGACAGCAGCAACAATGGCGGCAACAAAACGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACACCACCACAGATCATGTCGTGACGTCACTACCACCACCACCAAAGGCTCCATCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCACGCAACCTCCTCCACCTCCACCACGCCTTTCATGAGCAGCAGCGGCGGCTCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TyrSerAspArgProValLeuProProPseserProGlyLeuValLeuGlyPheSerLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TACTCGGACCGTCCAGGTTCTTCCTCCACCGTCTCCAGGGCTTGTGTTAGGCTTCTCCCAAA
                                                                                                                                                                                US-10-086-464-2 (1-647) x ACF36548
                                        4.62e-93
3453.00
100.00%
100.00%
                                                                               Percent Similarity:
Best Local Similarity:
                        Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                                                                21
                                                                                                                                                                                                                                                                                                                                                                              41
                                                                                                                                                                                                                                                                                                                                                                                                                     171
                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   721
                                                                                                                      Query Match:
DB:
                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                            ठ
                                                                                                                                                                                                                                                                                                                                                                                                         유
                                                                                                                                                                                                                                                                                                                                                                                                                                              ⋧
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ∂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
The invention relates to producing a transgenic plant having increased plant height, number of branches, number of seed pods and/or seed production compared to a non-transgenic plant, and/or quicker flowering or later sensecence compared to a non-transgenic plant. The method involves transforming a plant with a vector including a Proline-rich Extensin-like Receptor Kinase (PERK) nucleic acid molecule or a nucleic acid molecule having PERK activity. The method, as well as the PERK nucleic acid molecule and polypeptide, are useful in increasing plant resistance to wounding and pathogens and in increasing plant seed production. The nucleic acid molecule and polypeptide may also be used in producing transgenic plants or transgenic host cells. The present sequence represents a cDNA encoding a B. napus PERKI receptor kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Producing a transgenic plant having an increased plant resistance, plant growth or seed production comprises transforming a plant with a nucleic acid molecule having a Proline-rich Extensin-like Receptor Kinase
                                                           SerSerGluGlyGlnThrThrArgGluMetGluMetGlyLysIleLysArgThrGlyGln
                                                                                                                                                                                                                                                                                                                                                                                                                   PERK1; transgenic; plant; proline-rich extensin-like receptor kinase; wound; pathogen resistance; plant growth; seed production; gene; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      note= "Proline-rich Extensin-like Receptor Kinase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /*tag= a
kransl_except= (pos: 1332. .1334, aa: Phe)
                                                                                                                                                                                                                                                                                                                                                                              napus PERK1 receptor kinase encoding cDNA
                                                                                                                                                                              GCTTATAGTGGACCTTCTCTT 1941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                         647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "PERK1"
                                                                                                                                                                                                                                                           멾.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Claim 3; Fig 1A; 123pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Haffani YZ
                                                                                                                                       GlyTyrSerGlyProSerLeu
                                                                                                                                                                                                                                                         ACF36548 standard; cDNA; 1944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      28-FEB-2003; 2003WO-CA000274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           28-FEB-2002; 2002CA-02373903
28-FEB-2002; 2002US-00086464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 product=
                                                                                                                                                                                                                                                                                                                                       (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SILVA N.
HAFFANI Y Z.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2003-712727/67.
P-PSDB; ABR82937.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Silva N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GORING D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO2003072763-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                napus
                                                                                                                                                                                                                                                                                                                                       18-DEC-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 04-SEP-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Soring D,
                      1801
                                                                                                  1861
                                                                                                                                                                              1921
                                                           621
                                                                                                                                                                                                                                                                                                ACF36548;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Brassica
                                                                                                                                         641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (SILV/)
(HAFF/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              activity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (GORI/)
```

200

900

540

220

9

240

720 260 280 840 300

780

320

900

TTAGGACAAGGCGGGTTCGGTTACGTGCACAAAGGTGTGTTGCCTAGTGGGAAAGAAGTT

841 301

ò

Sequence 1944 BP; 464 A; 550 C; 459 G; 471 T; 0 U; 0 Other;

polypeptide

281

LeuGlyGlnGlyGlyPheGlyTyrValHisLyBGlyValLeuProSerGlyLyBGluVal

AlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluVal

AGCACTTTCACATACGAGGAGCTAGAGCTAGAGCCACCAATGGTTTCTCCGAGGCGAACTTG

781

쉱 8 용

261

ò

SerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeu

160 480 180

120

9 40

1944 647 0 0 0

Length: Matches: Conservative: Mismatches: Indels:

(1-1944)

180

9

240 100 300 120 360 140 420

```
ACF36549;
                                                            PERK1;
                                                                    wound;
                                                                                                                                                          5'UTR
                                                                                                                                                                                                                                3'UTR
                                                                                                      Key
                                                                                                                                                                            CDS
1020
                                                                                                      1140
                                                                                                                                                                                                             1320
                                                                                                                                                                                                                                                 1380
                                                                                                                                                                                                                                                                                    1440
                                                                                                                                                                                                                                                                                                                      1500
                                                                                                                                                                                                                                                                                                                                                          1560
                                                                                                                                                                                                                                                                                                                                                                                                                               1680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                1740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1920
                                                                    1080
                                                                                                                                        1200
                                                                                                                                                                            1260
                                                                                                                                                                                                                                                                                                                                                                                            1620
                                                                                    380
                                                                                                                                                                                                                                460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGCCAGTACAATGAAGACATGAAGAAGTTTAGGAAAATGGCACTTGGAACTCAAGAGTAC 1800
                                                                                                                        400
                                                   360
                                                                                                                                                          420
                                                                                                                                                                                             440
                                                                                                                                                                                                                                                                  480
                                                                                                                                                                                                                                                                                                      200
                                                                                                                                                                                                                                                                                                                                        520
                                                                                                                                                                                                                                                                                                                                                                           540
                                                                                                                                                                                                                                                                                                                                                                                                             560
                                                                                                                                                                                                                                                                                                                                                                                                                                                580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         640
                                                                                                                                                                                                                                                                                                                                        GAGATCATCAGCAGAGTTCACCACAGGCATCTGGTGTTCTTTGTTGTTGTTGTTGCATCGCC
                                                            GGTGCCAAAAGATTGCTTGTCTATGAGTTTGTTCCTAACAACAACAACTCCGGGCTTCACCTC
                                                                                                                                                                                                                                                                                                                TATGTAGATGACAGCTTAGTTGACTGGCCACCATTGCTTAACCGAGCATCTGAGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SerSerGluGlyGlnThrThrArgGluMetGluMetGlyLys1leLysArgThrGlyGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCTGTGAAGCAGTTGAAAGTTGGGAGTGGTCAGGGAGAGAGGGGAGTTTCAGGCAGAGGTT
               GlullelleSerArgValHisHisArgHisLeuValSerLeuValGlyTyrCysIleAla
                                                 GlyAlaLysArgLeuLeuValTyrGluPheValProAsnAsnAsnLeuGluLeuHisLeu
                                                                                      HisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySer
                                                                                                CATGGCGAGGGACGCCTACAATGGAATGGAGCACCAGATTGAAGATTGCTCTTGGATCT
                                                                                                                        AlaLysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAspIle
                                                                                                                                  LysAlaSerAsnIleLeuIleAspPheLysPheGluAlaLysValAlaAspPheGlyLeu
                                                                                                                                                                       AAGGCTTCAAACATATTGATAGATTTCAAGTTTGAAGCTAAGGTTGCTGATTTTGGTCTT
                                                                                                                                                                                             AlaLysIleAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGly
                                                                                                                                                                                                              GCTAAGATTGCTTCTGATACAACACGCATGTATCAACACGTGTGATGGGAACCTTTGGG
                                                                                                                                                                                                                              TyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPheSer
                                                                                                                                                                                                                                                  TACTTGGCTCCGGAATACGCTGCAAGCGGAAAGCTCACGGAGAAGTCTGACGTTTTCTCA
                                                                                                                                                                                                                                                                  PheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnVal
                                                                                                                                                                                                                                                                                    Triggegrigitiriegagerearraciggaegregaeeceerigargeeaagaargre
                                                                                                                                                                                                                                                                                                      TyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGluGln
                                                                                                                                                                                                                                                                                                                                                                           AlaArgMetValAlaCysAlaAlaAlaAlaCysValArgHisSerAlaArgArgArgProArg
                                                                                                                                                                                                                                                                                                                                                                                      GCTCGCATGGTTGCTTGTGCTGCGGCTTGTGTTTCGCCATTCAGCTCGCCGCAGACCTCGC
                                                                                                                                                                                                                                                                                                                                                                                                              MetSerGlnIleValArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGly
                                                                                                                                                                                                                                                                                                                                                                                                                           ATGAGCCAGATTGTGCGTGCGTTAGAAGGAAATGTATCACTGTCAGATCTTAACGAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                MetArgProGlyGlnSerAsnValTyrSerSerTyrGlyGlySerThrAspTyrAspSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATGAGACCAGGTCAAAGCAATGTATACAGCTCATACGGAGGAAGCACCGATTATGACTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SerGlnTyrAsnGluAspMetLysLysPheArgLysMetAlaLeuGlyThrGlnGluTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AsnAlaThrGlyGluTyrSerAsnProThrSerAspTyrGlyLeuTyrProSerGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGTTATAGTGGACCTTCTCTT 1941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyTyrSerGlyProSerLeu 647
                                                                    1021
                                                                                                                                                                                                                                                                                    1381
                                                                                                                                                                                                                                                                                                                       1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1921
901
                                 961
                                                    341
                                                                                                       1081
                                                                                                                         381
                                                                                                                                         1141
                                                                                                                                                          401
                                                                                                                                                                            1201
                                                                                                                                                                                             421
                                                                                                                                                                                                               1261
                                                                                                                                                                                                                                 441
                                                                                                                                                                                                                                                  1321
                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                         501
                                                                                                                                                                                                                                                                                                                                                          1501
                                                                                                                                                                                                                                                                                                                                                                           521
                                                                                                                                                                                                                                                                                                                                                                                             1561
                                                                                                                                                                                                                                                                                                                                                                                                              541
                                                                                                                                                                                                                                                                                                                                                                                                                               1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            641
                321
                                                                                      361
                                                                                                                                                                                                                                                                    461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                g
                                                                                                  셤
                                                                                                                                                                       සි දි
                                                                                                                                                                                                         셤
                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                      ద
                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         유
               ò
                             셤
                                                 ઠે
                                                                                  õ
                                                                                                                      ò
                                                                                                                                   ያ
የ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ઠે
```

BP.

ACF36549 standard; cDNA; 2189

ACF36549 ID ACF3

```
The invention relates to producing a transgenic plant having increased plant height, number of branches, number of seed pods and/or seed production compared to a non-transgenic plant, and/or quicker flowering or later senescence compared to a non-transgenic plant. The method involves transforming a plant with a vector including a Proline-rich Extensin-like Receptor Kinase (PERK) nucleic acid molecule or a nucleic acid molecule having PERK activity. The method, as well as the PERK nucleic acid molecule and polypeptide, are useful in increasing plant resistance to wounding and pathogens and in increasing plant growth and seed production. The nucleic acid molecule and polypeptide, as also be used in producing transgenic plants or transgenic polypeptide may also be belypeptide
                                                                                                                                                                                                                                                                                        /*tag= c
force= "ARR82938; this protein contains the amino acids
forces ponding to 5' and 3'UTR regions, though only the
relevant as residues (ABR82937) is used in the invention"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Producing a transgenic plant having an increased plant resistance, plant growth or seed production comprises transforming a plant with a nucleic acid molecule having a Proline-rich Extensin-like Receptor Kinase
                                                                                                  transgenic; plant; proline-rich extensin-like receptor kinase; pathogen resistance; plant growth; seed production; gene; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note= "ABR82937; proline-rich Extensin-like Receptor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                              /*tag= a
97. .2040
/*tag= b
/transl_except= (pos: 1332. .1334, aa:
/product=="PERK1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2189
647
                                                  receptor kinase encoding cDNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 494 G; 559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Disclosure, Fig 1D; 123pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Haffani YZ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28-FEB-2002; 2002CA-02373903.
28-FEB-2002; 2002US-00086464.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 544 A; 592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28-FEB-2003; 2003WO-CA000274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2041. .2189
/*tag= d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5e-93
3453.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 2003-712727/67.
P-PSDB; ABR82937, ABR82938.
(first entry)
                                                                                                                                                                                                                                                                  .2189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Kinase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Goring D, Silva N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SILVA N.
HAFFANI Y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GORING D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WO2003072763-A1
                                                     B. napus PERK1
                                                                                                                                                                                         Brassica napus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment Scores:
Pred. No.:
Score:
18-DEC-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            04-SEP-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               activity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (GORI/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (HAFF/)
```

us-10-086-464-2.rng

Maria Similarity, 100.000 Conservative: 0 Db 1057 GAGATCATCAGCAGAGTTCACCACAGGCATCTGGTGTTGTTGGTTATTGCATCGCC 1116 Qy 341 GlyAlaLy8ArgLeuLeuValTyrGluPheValProAsnAsnAsnLeuGluLeuHisLeu 360	Qy 361 HisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySer 380	Qy 381 AlaLysGlyLeuSerTyrLeuHisGluhspCysAsnProLysIleIleHisArgAspIle 400 	Qy 401 LysAlaSerAsnIleLeuIleAspPheLysPheGluAlaLysValAlaAspPheGlyLeu 420 	Oy 421 AlaLysIleAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGly 440	Oy 441 TyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPheSer 460	Qy 461 PheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnVal 480	Qy 481 TyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAspArgAlaSerGluGln 500	Oy 501 GlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAshZryzAspArgGluGluMet 520	Qy 521 AlaArgMetValAlaCysAlaAlaAlaCysValArgHisSerAlaArgArgArgArArg 540 	Oy 541 MetSerGlnIleValArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGly 560	Oy 561 MetargproGlyGlnSerAsnValTyrSerSerTyrGlyGlySerThrAspTyrAspSer 580	Qy 581 SerGinTyraenGluAspMetLysLysPheargLysMetAlaLeuGlyThrGinGluTyr 600	Qy 601 AsnalaThrGlyGluTyrSerAsnProThrSerAspTyrGlyLeuTyrProSerGlySer 620	Oy 621 SerSerGluGlyGlnThrThrArgGluMetGluMetGlyLysIleLysArgThrGlyGln 640	Oy 641 GlyTyrSerGlyProSerLeu 647 	RESULT 4 ACF36557 ID ACF36557 standard; DNA; 1959 BP. XX	AC ACF36557; XX DT 18-DEC-2003 (first entry)	
1100.004 Mismatches: 0 1100.004 Indels: 0 1100.004 Indels: 0 1100.004 Indels: 0 1100.004 Indels: 0 1100.004 Indels: 0 1100.004 Indels: 0 1100.005		0 1	0 P	0 0) vo	00	20 20	40	09	80	0 4	5 20	40	90	0 9		vo	40
	100.00% Conservative: 100.00% Mismatches: 100.00% Indels: 9 Gaps: 77 x ACP36549 (1-2189)	1 MetSerSerAlaProSerProGlyThrGlySerProProSerProProSerA6mSerThr	ThrThrThrProProProAlaSerAlaBroProProThrThrProSerSerProProPro	ProSerThrileProThrSerProProSerSerArgSerThrProSerAlaProPro	ProSerProProThrProSerThrProGlySerProProProLeuProGlinProSerPro	Proble Prother The Progly Ser Probroal a Proval The Proprother Gasn Pro	ProproserVal ProglyProProserAsnProserArgGluGlyGerProArgPro	ProserSerProSerProSerProSerSerAspGlyLeuSerThrGlyValValVal 	GlylleAlaileGlyGlyValAlaLeuLeuValIleValThrLeuIleCysLeuLeuCys	GGAATICGCCATCGCAGGAGTCGCTCTGCTTGTGATAGTGACTCTCTGTGTTTCTCTCTC	GlyProLysAlaGlyGlyProTyrGlyGlyGlyGlnGlnGlnTrpArgGlnGlnAsnAla	ThrProProSerAspHisValValThrSerLeuProProProProLysAlaProSerPro	ProArgGlnProProProProProProPheMetSerSerSerGlyGlyGlySerAsp 	TyrserAspArgProValLeuProProProSerProGlyLeuValLeuGlyPheSerLys	SerThrPheThrTyrGluGlubeualaargalaThrAanGlyPheSerGluAlaAsnLeu 	LeuGlyGlnGlyGlyBheGlyTyrValHisLyBGlyValLeubroSerGlyLyBGluVal 	AlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluVal 	GlullelleSerArgValHisHisArgHisLeuValSerLeuValGlyTyrCysIleAla

399

131

169

519 189 579 208

459

151

639

---HisValVal

228 969 247

756 267 816 287 876 307 936 327 966 347

```
(237 GATTTCAAATTTCAAGCTAAGGTTGCTGACTTTGGTCTTGCCAAGATTGCTTCTGATACA 1296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAla 447
                                                                                                       CATGAAGATTGCAAATCGGAAAATCATTCACCGTGATATTAAGGCGTCAAACATATTGATT
                  CTTCCTCAACCTTCCCCCTCCGCTCCCATCACTCCT---TCTCCACCGTCTCCCACCACA
                                                                                                                                                                           GATGGATTGTCTACCGGAGTTGTGGTAGGAATCGCCATTGGAGGAGTCGCTATTCTTGTT
                                                                                                                                                                                                               ProProPro---PheMetSerSerGrGlyGlySerAspTyrSerAspArgProValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProProProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCTCCACCATCTCCAGGGCTTGTGTTAGGCTTTTCTAAAAGCACTTTCACTTATGAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TyrvalHisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TyrGluPheValProAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MetGluTrpSerThrArgLeuLy81leAlaLeuGlySerAlaLy8GlyLeuSerTyrLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HisGluAspCysAsnProLysIleIleHisArgAspIleLysAlaSerAsnIleLeuIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AspPheLysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThr
                                                     ProProThr --- ArgAsnProProProSerValProGlyProProSerAsnProSerArg
                                                                            cecrcaaacecredaagecercearereraaceaaggaceaecaaceaecredere---
                                                                                                                                                            AspGlyLeuSerThrGlyValValValGlyIleAlaIleGlyGlyValAlaLeuLeuVal
                                                                                                                                                                                                                                                                   AspalaTyrTyrValProProProProProProGlyProLysAlaGlyGlyProTyrGly
                                                                                                                                                                                                                                                                                 ThrSerLeuProProProLysAlaProSerProProArgGlnProProProProPro
                                                                                                                                                                                                                                                                                                                                                                                           ccaccaccatrcardagraccagragitericacaratrogarcraccarrerr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGTAGTGGTCAGGGAGAGAGAGAGAGTTTCAGGCTGAGGTTGAGATCATTAGCAGAGTTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HisArgHisLeuValSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuVal
LeuProGlnProSerProProAlaProThrThrProGlySerProProAlaProValThr
                                                                                                                                                                                                                                                                                                                       GlyGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  388
 75
                          229
                                                     95
                                                                               286
                                                                                                          114
                                                                                                                                    343
                                                                                                                                                             132
                                                                                                                                                                                        400
                                                                                                                                                                                                                  152
                                                                                                                                                                                                                                                                      170
                                                                                                                                                                                                                                                                                               520
                                                                                                                                                                                                                                                                                                                         190
                                                                                                                                                                                                                                                                                                                                                   580
                                                                                                                                                                                                                                                                                                                                                                            209
                                                                                                                                                                                                                                                                                                                                                                                                      540
                                                                                                                                                                                                                                                                                                                                                                                                                                 229
                                                                                                                                                                                                                                                                                                                                                                                                                                                           697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             요
                                                                                                                                                                                   g
                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                  g
                                                                        g
                                                                                                        ò
                                                                                                                             ద
                                                                                                                                                            ò
                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                            The invention relates to producing a transgenic plant having increased plant height, number of branches, number of seed pods and/or seed production compared to a non-transgenic plant, and/or quicker flowering or later senescence compared to a non-transgenic plant. The method involves transforming a plant with a vector including a Proline-rich Extensin-like Receptor Kinase (PERK) nucleic acid molecule or a nucleic acid molecule having PERK activity. The method, as well as the PERK nucleic acid molecule and polypeptide, are useful in increasing plant resistance to wounding and pathogens and in increasing plant seed production. The nucleic acid molecule and polypeptide may also be used in producing transgenic plants or transgenic host cells. The present sequence represents an A. thaliana PERKI DNA (At3924550)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           35
                                                                                                                                                                                                                                                                                                                                       plant
                                                                                                                                                                                                                                                                                                                                      an increased plant resistance, plant
transforming a plant with a nucleic
Extensin-like Receptor Kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ---GlySerProProSerProProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AsnSerThrThrThrProProProAla-----SerAlaProProThrThrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AACTOGACAACCACCACTCCTCCAGCAGCCTCTTCTCCTCCTCCTCCACACCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SerSerProProPro---ProSerThrIleProThrSerProProSerSerArgSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      rerrerecreerecerecaecrantrancererrerecreererrerrer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ThrProSerAlaProProSerProProThrProSerThrProGlySerProProPro
                                        PERK1; transgenic; plant; proline-rich extensin-like receptor kinase; wound; pathogen resistance; plant growth; seed production; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 1959 BP; 496 A; 514 C; 425 G; 524 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1959
574
24
41
21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
Conservative:
Mismatches:
Indels:
               DNA
               thaliana PERK1 protein encoding genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MetSerSerAlaProSerProGlyThr----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (1-1959)
                                                                                                                                                                                                                                                                                                                                     Producing a transgenic plant having
growth or seed production comprises
acid molecule having a Proline-rich
                                                                                                                                                                                                                                                                                                                                                                                                         Disclosure, Fig 21d; 123pp; English
                                                                                                                                                                                                                                                                                    XZ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-086-464-2 (1-647) x ACF36557
                                                                                                                                                                                                                                                                                    Haffani
                                                                                                                                                               28-FEB-2003; 2003WO-CA000274
                                                                                                                                                                                        28-FEB-2002; 2002CA-02373903.
28-FEB-2002; 2002US-00086464.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5.28e-78
2936.50
90.61%
86.97%
85.04%
                                                                               Arabidopsis thaliana.
                                                                                                                                                                                                                                           (SILV/) SILVA N.
(HAFF/) HAFFANI Y Z.
                                                                                                                                                                                                                                                                                  Silva N,
                                                                                                                                                                                                                                                                                                              WPI; 2003-712727/67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                (GORI/) GORING D.
                                                                                                          WO2003072763-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment Scores:
Pred. No.:
                                                                                                                                    04-SEP-2003
                                                                                                                                                                                                                                                                                    Goring D,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score
  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
```

1056

1116

367

1176

407

387

1236

g

ઠે පු ઠે 셤 요

ઠે

8 &

g

ठ 셤

ठ

ઠે 쉽 ઠે 8 8

ò

```
9905-0129845P

9905-013061P

9905-013061P

9905-01312448P

9905-0132484P

9905-0132484P

9905-0132484P

9905-0132484P

9905-0132484P

9905-0132484P

9905-0132481P

9905-013421B

9905-013421B

9905-013421P

9905-013421P

9905-013421P

9905-013421P

9905-013421P

9905-013421P

9905-013421P

9905-013421P

9905-013421P

9905-013421P

9905-013421P

9905-013421P

9905-013421P

9905-013421P

9905-013421P

9905-013421P

9905-013421P

9905-013452P

9905-0139452P

9905-0139454P

9905-0139454P

9905-0139454P

9905-0139454P

9905-0139454P

9905-0139453P

9905-0139453P

9905-0139453P

9905-0139453P

9905-0139453P

9905-0139453P

9905-0139453P

9905-0140695P

9905-0140695P

9905-0140695P

9905-0140832P

9905-0140832P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            990S-0142390P.
990S-0142803P.
990S-0142920P.
990S-0143542P.
990S-0144628P.
990S-0144086P.
990S-0144328P.
990S-0144332P.
         116-APR-1999
19-APR-1999
23-APR-1999
23-APR-1999
30-APR-1999
30-APR-1999
30-APR-1999
30-APR-1999
40-MAY-1999
11-MAY-1999
14-MAY-1999
14-MAY-1999
14-MAY-1999
11-MAY-1999
11-MAY-1999
11-MAY-1999
11-MAY-1999
11-MAY-1999
11-MAY-1999
12-MAY-1999
25-MAY-1999
25-MAY-1999
25-MAY-1999
25-MAY-1999
25-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                   18-JUN-1999;
18-JUN-1999;
18-JUN-1999;
                                                                                                                                                                                                                                                                                                               18-JUN-1999;
18-JUN-1999;
18-JUN-1999;
                                                                                                                                                                                                                                    07-JUN-1999;
08-JUN-1999;
10-JUN-1999;
                                                                                                                                                                                                                                                          10-JUN-1999;
14-JUN-1999;
16-JUN-1999;
                                                                                                                                                                                                                                                                                16-JUN-1999;
17-JUN-1999;
18-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                 28-JUN-1999;
29-JUN-1999;
30-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      08-JUL-1999;
09-JUL-1999;
12-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19-JUL-1999;
19-JUL-1999;
19-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                            11-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                         23-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                         24-JUN-1999
                                                                                                                                                                                                                             04-JUN-1999
                                                                                                                                                                                                                                                                                                        8-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -JUL-1999
   1536
                                                                                                                                                                                             1716
                                                                                                                                                                                                                             1776
                                                                                                                                                                                                                                          1956
547
                                                                                                                                                                                                                                                                                 487
                                                                                     507
                                                                                                                  527
                                                                                                                                                                                                            587
                                                                                                                                                                               567
                                                                                                                                                                                                                                                                         627
                                                                                                                                                                                                                                                                                                        647
                                                                                                                                                                                                                                                                                                                                                                                                                 Hybridisation assay; genetic mapping; gene expression control; protein identification; signal transduction pathway; metabolic pathway; promoter; termination sequence; ss.
                                                                                   AspalaLysMetAsnAsnGlyTyrAspargGluGluMetAlaArgMetValAlaCysAla
                                                                                                                                                                               LeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgFroGlyGlnSerAsn
                                                                                                                                                                                                                     AlaSerGlyLysLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGlu
                                                                                                                         TTAGAAGGAAATGTATCGCTGTCTTAACGAAGGGATGAGACCGGGTCACAGCAAC
                                                                                                                                                                                                            ValTyrSerSerTyrGlyGlySerThrAppTyrAspSerSerGlnTyrAsnGluAspMet
                                                                                                                                                                                                                                                                        AsnProThrSerAspTyrGlyLeuTyrProSerGlySerSerSerGluGlyGlnThrThr
                                                                                                                                                                                                                                                                                                                                                                                                  Arabidopsis thaliana DNA fragment SEQ ID NO: 15710.
                                                                                                                                                                                                                                                                                                                                                    ВР
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99US-0121825P.
99US-0123180P.
99US-0125784P.
99US-0126264P.
99US-0127462P.
99US-0127462P.
                                                                                                                                                                                                                                                                                                                                                    AAC36968 standard; DNA; 2324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000EP-00301439
                                                                                                                                                                                                                                                                                                                                                                                   17-OCT-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                               Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            25-PEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           25-FEB-1999;
05-MAR-1999;
09-MAR-1999;
23-MAR-1999;
25-MAR-1999;
01-APR-1999;
06-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              EP1033405-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              06-SEP-2000
                                                                                                                                                                                            1657
        1297
                                                                                                                                                                                                                                                                                       1837
                                                                                                                                                                                                                                                                                                                                                                   AAC36968;
                       448
                                      1357
                                                      468
                                                                   1417
                                                                                    488
                                                                                                  1477
                                                                                                                  508
                                                                                                                                 1537
                                                                                                                                                 528
                                                                                                                                                               1597
                                                                                                                                                                               548
                                                                                                                                                                                                             268
                                                                                                                                                                                                                            1717
                                                                                                                                                                                                                                                                                                                      1897
                                                                                                                                                                                                                                                                         608
                                                                                                                                                                                                                                                                                                        628
```

```
990KS-0144334P

990KS-0144334P

990KS-0144632P

990KS-0144634P

990KS-0145086F

990KS-0145086F

990KS-0145087P

990KS-0145087P

990KS-0145087P

990KS-0145087P

990KS-0145087P

990KS-0145087P

990KS-0145087P

990KS-0145087P

990KS-0145087P

990KS-0145087P

990KS-0145087P

990KS-0145087P

990KS-0145087P

990KS-0145087P

990KS-0145087P

990KS-014724P

990KS-014724P

990KS-014724P

990KS-014724P

990KS-014724P

990KS-014724P

990KS-0149975P

990KS-0149975P

990KS-0149975P

990KS-0149975P

990KS-0149975P

990KS-0149975P

990KS-0149975P

990KS-0149975P

990KS-0149975P

990KS-0149975P

990KS-0151086F

990KS-0151086F

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990KS-0151080P

990K
 19-JUL-1999

19-JUL-1999

20-JUL-1999

20-JUL-1999

21-JUL-1999

22-JUL-1999

23-JUL-1999

23-JUL-1999

23-JUL-1999

23-JUL-1999

23-JUL-1999

23-JUL-1999

24-JUL-1999

25-JUL-1999

27-JUL-1999

27-JUL-1999

27-JUL-1999

28-JUL-1999

28-JU
```

		-GlySerProProSerProProSer 17 	SerAlaProProThrThrPro 35	roserSerArgSer 54 CTTCTTCTCTTTA 284	ySerProProPro 74	ySerProProAlaProValThr 94	rAsnProSerArg 113 : CACTCCTCA 446
	Length: 2324 Matches: 570 Conservative: 26 Mismatches: 23 Indels: 13	GlySerProPro actccatcaccatcrccacd	AlaSerAlaProPro 		roproproserProproThrProserThrProGlySerProProProProProProProProProProProProPro	aProthrThrProGlySerProProAlaBroValThr rcccatcActccrtccccgcGrcsrcccaccAcA	-ArgasnProProSerValProGlyProProSerAsnProSerArg :: rcGaagccctcCarctcctaaccaaggaCcaccaaCaaccctca
99US - 0159295P. 99US - 0159232P. 99US - 0159330P. 99US - 0159331P. 99US - 015637P. 99US - 015637P. 99US - 015637P. 99US - 0160741P. 99US - 0160741P. 99US - 0160741P. 99US - 016098P. 99US - 016098P. 99US - 016098P. 99US - 016098P. 99US - 016098P. 99US - 016098P. 99US - 016198P. 99US - 016198P. 99US - 016198P. 99US - 016199P. 99US - 016199P.	1.88e-76 2885.00 20.30% 86.36% 83.55% x AAC36968 (1-2	NProSerProGlyThr gcGTCTCCAGGCACT	ABBSETThTThTThTThTPFOProProAlaSerAlaProProProThTT 	erSerProProProSerThr11eProThrSerProProProSerSerArgSer 	roProProSerPro 	LeuproGlnProSerProProAlaProThrThrProGl 	: 8
HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH	Alignment Scores: Pred. No.: Score: Percent Similarity: Best Local Similarity: Query Match: DB: US-10-086-464-2 (1-647)	1 MetSerS : 105 ATGTCCA	18 AsnSerT 165 AACTCGA	36 SerSerP 225 TCTTCTC	55 ThrProSerAlaP	75 LeuProG 333 CTTCCTC	95 ProProThr 390 CCCTCAAAC
***************************************	Aligr Score Score Perce Best Query DB:	\$ A	& 8	λο q	λό d	ç G	λο O

131 503 151 563

ò

504 132

면 당 당 당

152 564

ઠે 셤

```
BP.
                                                                                                                                                                                                                                                                                                                                                                                               ACF36554 Btandard; DNA; 1812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Haffani
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28-FEB-2003; 2003WO-CA000274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28-FEB-2002; 2002CA-02373903
28-FEB-2002; 2002US-00086464
                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SILVA N.
HAFFANI Y Z.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Silva N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 2003-712727/67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO2003072763-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GORING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Oryza sativa.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            18-DEC-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   04-SEP-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ď,
                1697
                                                                            1757
                                               548
                                                                                                           568
                                                                                                                                          1817
                                                                                                                                                                         588
                                                                                                                                                                                                     1877
                                                                                                                                                                                                                                    609
                                                                                                                                                                                                                                                                   1937
                                                                                                                                                                                                                                                                                                                                 1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (SILV/)
(HAFF/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (GORI/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PERK1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        wound;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Goring
                                                                                                                                                                                                                                                                                                                                                             ACF36554
ACF36554
ACF36554
ACF36554
ACF36554
ACF36554
ACF36554
ACF36554
ACF36554
ACF36554
ACF36554
ACF36554
ACF36554
ACF36554
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36564
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36444
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36444
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF36644
ACF
                                                                    S
S
                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                       원
                                   જે
                                                                                                 ⋧
                                                                                                                                                                    8
                                                                                                                                                                                          원장
                                                                                                                                                                                                                                                           유
                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                              GCGAGTGGTCAGGGAGAGAGAGATTTCAGGCTGAGGTTCAGATCATTAGCAGAGTTCAT 1097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HisarghisLeuvalSerLeuvalGlyTyrCysllealaGlyAlaLysargLeuLeuval 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GATTICAAATTIGAAGCTAAGGTIGCTGACTTIGGTCTIGCCAGGATIGCTICTGATACA 1397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCAAGCGGAAAGCTCACAGAAAAGTCTGACGTTTTCTCATTTGGTGTTGTACTTTTGGAG 1517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTTATAACCGGGGGGCGCCTGTTGATGCAAACAATGTCTATGTAGATGACAGCTTAGTT 1577
                                                                                                                                                                                                                                                                                                                                                                                                                                             327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    487
                               680
                                                                                                                                                         797
                                                                                                                                                                                      247
                                                                                                                                                                                                                     857
                                                                                                                                                                                                                                                    267
                                                                                                                                                                                                                                                                                                                   287
                                                                                                                                                                                                                                                                                                                                                977
                                                                                                                                                                                                                                                                                                                                                                             TyrValHisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysVal 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TyrGluPheValProAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThr 367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MetGluTrpSerThrArgLeuLys1leAlaLeuGlySerAlaLysGlyLeuSerTyrLeu 387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HisGluAspCysAsnProLysIlelleHisArgAspIleLysAlaSerAsnIleLeulle 407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AspalaLysMetAsnAsnGlyTyrAspargGluGluMetAlaArgMetValAlaCysAla 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              528 AlaAlaCysValArgHisSerAlaArgArgArgProArgMetSerGlnIleValArgAla 547
                                                                                                                                                                                     ProProPro----PheMetSerSerGlyGlySerAspTyrSerAspArgProValLeu
                                                                                                                                                                                                                                                   ProProProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                          GlySerGlyGluGlyGluPrgGluPheGlnAlaGluValGluIleIleSerArgValHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGGAATGGAGTACTAGATTGAAGATTGCTCTTGGATCTGCTAAAGGACTTTCATATCTT
 AspAlaTyrValProProProProProProGlyProLysAlaGlyGlyProTyrGly
                 GlyGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAsp---Hisvalval
                                                                                ACGTCATTG---CCACCACCTAAGCCTCCATCTCCACCACAAAACCTCCTCCGCCACCT
                                                                                                                                                                                                                     ccaccaccacrarcardagradcagragragracrarroggarcrrccggrrcrr
                                                                                                                                                                                                                                                                                  ccrccaccarcrccaggcrrgrgrraggcrrrrrcaaaagcacrrrcacrrargaggag
                                                                                                                                                                                                                                                                                                                 LeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGly
                                                                                                                                                                                                                                                                                                                                                rrercaacaderacraarecerrercreacecraarrrerrageacaaceacerreer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AspPheLysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AlaSerGlyLysLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LeulleThrGlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AspTrpAlaArgProLeuLeuAsnArgAlaSerGluGluGlyAspPheGluGlyLeuAla
 170
                                                                                                                                                                                                                                                                                                                                                918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1398
                                                                                                                                                                                      229
                                                                                                                                                                                                                     198
                                                                                                                                                                                                                                                    248
                                                                                                                                                                                                                                                                                                                                                                                                            978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1518
                                                              061
                                                                                                                          509
                                                                                                                                                       741
                                                                                                                                                                                                                                                                                  858
                                                                                                                                                                                                                                                                                                                   568
                                                                                                                                                                                                                                                                                                                                                                               288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1578
                                                                                                                                                                                                                                                                                                                                                                                                                                           308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                508
                      a
                                                                                                                                              6 B 6 B 6 B 6 B 6 B 6 B 6 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8 & 8
                                                            ઠ
                                                                                음 장
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8 6 8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8 6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5 8 8
```

```
1876
                                                                                                                                                                                                                                                                                                                                                                                                                      1936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   647
                                                                                                                                                                                                                                                                                                                                                    607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Producing a transgenic plant having an increased plant resistance, plant growth or seed production comprises transforming a plant with a nucleic acid molecule having a Proline-rich Extensin-like Receptor Kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The invention relates to producing a transgenic plant having increased plant height, number of branches, number of seed pods and/or seed production compared to a non-transgenic plant, and/or quicker flowering or later sensecence compared to a non-transgenic plant. The method involves transforming a plant with a vector including a Proline-rich Extensin-like Receptor Kinase (PERK) nucleic acid molecule naving PERK activity. The method, as well as the PERK nucleic acid molecule and polypeptide, are useful in increasing plant resistance to wounding and pathogens and in increasing plant seed production. The nucleic acid molecule and seed production also be
                                                                                                      transgenic; plant; proline-rich extensin-like receptor kinase; pathogen resistance; plant growth; seed production; rice; gene;
GCAGCTTGTGTTCGCCATTCAGCTCGCCGCAGACCTCGCATGAGCCAGATAGTACGGGCG
                                                                                                                                                                                                         ValTyrSerSerTyrGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMet
                                                                                                                                                                                                                                                                                                                                                                                         AsnProThrSerAspTyrGlyLeuTyrProSerGlySerSerSerGluGlyGlnThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ArgGluMetGluWetGlyLyslleLysArgThrGlyGlnGlyTyrSerGlyProSerLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGAGAAATGGAGATGGGAAAGATTAAGAAAACCGGTCAAGGTTATAGTGGACCTCTCTT
                                                                     LeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsn
                                                                                                                                                                                                                                                                                                                                                    LysLysPheArgLysMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sativa PERK protein encoding genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Disclosure; Fig 21a; 123pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               YZ;
```

834

370 954 390

894

1014

1074

410

1134

430

1194

450

```
:::|||||||||
gatgtgtcattggatgatctgaacgaaggtgttcgtcctggccatagccgattcttggga
                                                                                                                                                                                                                                                                                                                                                                                                                           ||||||||
TCATAC---AACAGCAACGAGTACGACACGAGCCATTACAATGAAGACCTGAAGAAATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ValProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrp
                                                                  ArgProleuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAlaLys
                                                                                                                                                                                                                                                                                                                   MetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAlaAlaAlaCys
                                                                                                                                                                                                                                                                                                                               :::
CTAGGACAGGAGTACAATGGTAACGAGATGGCGAGGATGATTGCTTGTGCAGCTGCTTGT
                                                                                                                                                                                                                                                                                                                                                                                   AsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsnValTyrSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArglysMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnProThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SerAspTyrGlyLeuTyrProSerGlySerSerSerGluGlyGlnThrThrArg-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAGCCCACCGAGTTCGTCCCGAATCGATCCGTATCAATGGGGGATGCGCGTCAAATACCG
LeuvalSerLeuvalGlyTyrCysIleAlaGlyAlaLysArgLeuLeuvalTyrGluPhe
                                                                                                                                                                                                                                                     GlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAla
                                                                                                                                                                                                                                                                                                                                                                                                                  SerTyrGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMetLysPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAGACGGAGATGGAGATGGGGAGTTTGAAGAAAGATGGC 1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----GluMetGluMetGlyLysIleLysArgThrGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  standard; DNA; 1515
                                                                                                                                                                                                                                                                                                                                                                                                    1495 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1612
                                                                                                                                                                                                                                                                                                                      511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACF36555
                                                                                                                                                                                        431
                                                                                                                                                                                                       1135
                                                                                                                                                                                                                                       1195
                                                                                                                                                                                                                                                                      1255
                                                                                                                                                                                                                                                                                                                                      1375
                                                                                                                                                                                                                                                                                                                                                                     1435
                                                                                                                                                                                                                                                                                                                                                                                                                                    1555
         775
                          331
                                         835
                                                         351
                                                                        895
                                                                                        371
                                                                                                                         391
                                                                                                                                        1015
                                                                                                                                                                                                                        451
                                                                                                                                                                                                                                                       471
                                                                                                                                                                                                                                                                                      491
                                                                                                                                                                                                                                                                                                                                                      531
                                                                                                                                                                                                                                                                                                                                                                                     551
                                                                                                                                                                                                                                                                                                                                                                                                                    571
                                                                                                                                                                                                                                                                                                                                                                                                                                                    591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACF36555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACF36555
ID ACF
XX
AC ACF
                                                                                                                                                                   8 8
                                                                                                                                                                                                                                                                                                                                                                g &
                                                                                                                                                                                                                                                                                                                                                                                                8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               임
         8 6 8
                                                       8 8 8
                                                                                                   요
                                                                                                                       6 8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           330
                                                                                                                                                                                                                                                                                                                                                                                                                                           543
                                                                                                                                                                                                                                                                                                                                                                                                                                                           250
                                                                                                                                                                                                                               AsnProSerArgGluGlyGlySerProArgProProSerSerPro---SerProProSer 128
                                                                                                                                                                                                                                                              ProSerSerAspGlyLeuSerThrGlyValValValGly1leAla11eGlyGlyValAla 148
                                                                                                                                                                                                                                                                                                                                              381
                                                                                                                                                                                                                                                                                                                                                            ProProProProProProGlyProLysAlaGlyGlyProTyrGlyGlyGlnGlnGln 194
                                                                                                                                                                                                                                                                                                                                                                                                                            234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          714
                                                                                                                                                                                                                                                                                                              321
  cells. The present
genomic DNA (TIGR
                                                                                                                                73
                                                                                                                                           51
                                                                                                                                                                91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GIGCTGCTCGTCGTCACCATCCTGCTCGTCTGCTGTTCAAGAAGAAGAAGCGGCACCAC
                                                                                                                                                                                                                                                                                                                                                                           cciccicciccicciccicciccicciccanadecearcaciarecreaegereraccanana
                                                                                                                                                                                                                                                                                                                                                                                            AlaThrAsnGlyPheSerGluAlaAsnLeuGlyGlnGlyGlyPheGlyTyrValHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerThrProSerAlaProProProSerProProThrProSerThrProGlySerProPro
                                                                                                                                          :::|||||||
|------GCGACACGCCT
                                                                                                                                                                ProLeuProGlnProSer-----ProProAlaProThrThrProGlySerProProAla
                                                                                                                                                                                                Pro-----ValThrProProThrArgAsnProProProSerValProGlyProProSer
                                                                                                                                                                                                                                         GCGTCGAGCTCGGGCCTGACGACGCCCCGTGGTGGTGGGGGATCGTGGTGGGCGGCCTCGTC
                                                                                                                                                                                                                                                                                              LeuLeuVallleValThr-----LeulleCysLeuLeuCysLysLysLysArgArg
                                                                                                                                                                                                                                                                                                                               TyrTyr-----Val
                                                                                                                                                                                                                                                                                                                                             ProlysalaProSerProProArgGlnProProProProProProProPheMetSer
                                                                                                                                                                                                                                                                                                                                                                                                                                     SerSerGlyGlySerAspTyrSer-----AspArgProValLeuProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGluLeuAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHisHisArgHis
                                  U; 0 Other
  r transgenic host
protein encoding
                                                        1812
370
69
119
55
                                                        Length:
Matches:
Conservative:
Mismatches:
                                  ٦;
٦
                                                                                                                                          C; 512 G; 404
  plants or t
tiva PERK pr
                                                                                                                 (1-1812)
 used in producing transgenic plan
sequence represents an O. sativa
Accession No. TC102111)
                                                                                                                 x ACF36554
                                  BP; 409 A; 487
                                                        1.6e-45
1821.50
71.62%
60.36%
52.75%
                                                                                                                                                                                                                                                                                                                               AspGluGluAspAla---
                                                                                                                 US-10-086-464-2 (1-647)
                                                                       Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                  Sequence 1812
                                                 Alignment Scores:
Pred. No.:
Score:
                                                                                                                                                4
                                                                                                                                                                74
                                                                                                                                                                                22
                                                                                                                                                                                                               112
                                                                                                                                                                                                                               110
                                                                                                                                                                                                                                               169
                                                                                                                                                                                                                                                               129
                                                                                                                                                                                                                                                                               202
                                                                                                                                                                                                                                                                                                                              167
                                                                                                                                                                                                                                                                                                                                                                              382
                                                                                                                                                                                                                                                                                                                                                                                                                            215
                                                                                                                                                                                                                                                                                                                                                                                                                                            484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           291
                                                                                                                                                                                                92
                                                                                                                                                                                                                                                                                               149
                                                                                                                                                                                                                                                                                                                                                              175
                                                                                                                                                                                                                                                                                                                                                                                              195
                                                                                                                                                                                                                                                                                                                                                                                                            442
                                                                                                                                                                                                                                                                                                                                                                                                                                                            235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           311
                                                                                                                                                                                                                                                                                                              262
                                                                                                                                                                                                                                                                                                                                             322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            655
  ន្តន្តន្តន
                                                                                                                                                           6 8 6 8 6 8 6 8 6 8 6 8 6 8 6 8 6 8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                ò
                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8 S
```

1314

490

1374

530

510

1254

470

1494

570

550

1434

1611

610

358

444 378 504 398 564 418 624 438 684 458 744

324 338 384

Thu

```
GATTCTGGCCAGTACAACGAGGACATGAAGAAGTTCAAGAAGATGGCATTCAACAACAAC 1161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PheSerPheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsn 478
                                                                                                                                                                                                                                                                                                                                                                                                                         GluGlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnAryrAspArgGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProArgMetSerGlnIleValArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AspSerSerGlnTyrAsnGluAspMetLysLysPheArgLysMetAlaLeuGlyThrGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IleAlaGlyAlaLysArgLeuLeuValTyrGluPheValProAsnAsnAsnLeuGluLeu
                                                                                                                                                                 ATTICTGGAGGCAAGAGGCTGCTTGTCTATGAGTTTGTCCCCAATAACACATTGGAATTC
                                                                                                                                                                                                     HisLeuHisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeu
                                                                                                                                                                                                                       GlySerAlaLysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArg
                                                                                                                                                                                                                                                                                                               AspileLysAlaSerAsnIleLeuIleAspPheLysPheGluAlaLysValAlaAspPhe
                                                                                                                                                                                                                                                                                                                                                                                      AsnValTyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAAACATATATGGATGACAGCTTGGTTGATGGGCAAGGCCATTACTGATGCGAGCACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAGATGGCAAGAATGATGATAGCCTGTGCAGCTGCATGTGTACGCCATTCTGCACGTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GluGlyMetArgProGlyGlnSerAsnValTyrSerSerTyrGlyGlyGerThrAspTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlyserSerSerGluGlyGlnThrThrArgGluMetGluMetGlyLysIleLysArgThr
                                         GluValAlaValLyBGlnLeuLyBValGlySerGlyGlnGlyGluArgGluPheGlnAla
                                                                                             GluValGluIleIleSerArgValHisHisArgHisLeuValSerLeuValGlyTyrCys
                                                                                                                                                                                                                                                                            GACATAAAGGCATCTAACATTCTTCTTGACTTCCAATTTGAAGCTAAGGTTGCTGATTTT
                                                                                                                                                                                                                                                                                                                                                                      GlyLeuAlaLys1leAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlumetAlaArgMetValAlaCysAlaAlaAlaAlaCysValArgHisSerAlaArgArgArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ccacerareaercaercerreeeecrrreeaeeecaarererrreeaeeaecrraar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GluTyrAsnAlaThrGlyGluTyrSerAsnProThrSerAspTyrGlyLeuTyrProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----GlnGlyTyrSerGlyProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gly----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1102
               205
                                         299
                                                                  265
                                                                                             319
                                                                                                                        325
                                                                                                                                                   339
                                                                                                                                                                                                      359
                                                                                                                                                                                                                                 445
                                                                                                                                                                                                                                                            379
                                                                                                                                                                                                                                                                                       505
                                                                                                                                                                                                                                                                                                                  399
                                                                                                                                                                                                                                                                                                                                             565
                                                                                                                                                                                                                                                                                                                                                                      419
                                                                                                                                                                                                                                                                                                                                                                                                 625
                                                                                                                                                                                                                                                                                                                                                                                                                            439
                                                                                                                                                                                                                                                                                                                                                                                                                                                      685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               639
                                                                 원
                                                                                                                 ద
                                                                                                                                                                        원
                                                                                                                                                                                                     ò
                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                      ò
                                                                                            ઠે
                                                                                                                                                  ઠે
                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                     ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCTAATTACTCTGGCGGCGAGATCCTACCTCCACCCTCGGAGCTGTTCTTGGCTTC 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerLysSerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAla 278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           279 AsnLeuLeuGlyGlnGlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLys 298
                                                                                                                                                                                                                                                                                                                                                                     Producing a transgenic plant having an increased plant resistance, plant growth or seed production comprises transforming a plant with a nucleic acid molecule having a Proline-rich Extensin-like Receptor Kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      84
                                                                                                                                                                                                                                                                                                                                                                                                                                                              The invention relates to producing a transgenic plant having increased plant height, number of branches, number of seed pods and/or seed production compared to a non-transgenic plant, and/or quicker flowering or later senescence compared to a non-transgenic plant. The method involves transforming a plant with a vector including a Proline-rich Extensin-like Receptor Kinase (PERK) nucleic acid molecule or a nucleic acid molecule having PERK activity. The method, as well as the PERK nucleic acid molecule and polypeptide, are useful in increasing plant resistance to wounding and pathogens and in increasing plant growth and seed production. The nucleic acid molecule and polypeptide may also be used in producing transgenic plants or transgenic host cells. The present sequence represents a Z. mays PERK protein encoding genomic DNA (TIGR
                                                     PERKI; transgenic; plant; proline-rich extensin-like receptor kinase; wound; pathogen resistance; plant growth; seed production; maize; gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCGAAGAGCACATTCACCTACGAAGAGCTGTTGAGGGCTACTGATGGATTCTCGGATGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerAspTyrSerAspArgProValLeuProProProSerProGlyLeuValLeuGlyPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProArgGlnProProProProProProProPheMetSerSer-----GlyGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C; 381 G; 404 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1515
321
43
59
12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
Conservative:
Mismatches:
                            mays PERK protein encoding genomic DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-086-464-2 (1-647) x ACF36555 (1-1515)
                                                                                                                                                                                                                                                                                                                                                                                                                                         Disclosure, Fig 21b; 123pp; English.
                                                                                                                                                                                                                                                                                                                  Haffani YZ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 1515 BP; 400 A; 330
                                                                                                                                                                                                                   2002CA-02373903
2002US-00086464
                                                                                                                                                                                         28-FEB-2003; 2003WO-CA000274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4.23e-41
1668.00
83.87%
73.96%
 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Accession No. AY108241)
                                                                                                                                                                                                                                                                         SILVA N.
HAFFANI Y Z.
                                                                                                                                                                                                                                                                                                                  Silva N,
                                                                                                                                                                                                                                                                                                                                           WPI; 2003-712727/67
                                                                                                                                                                                                                                                            GORING D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity:
                                                                                                                                   WO2003072763-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
                                                                                                                                                                                                                   28-FEB-2002;
28-FEB-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment Scores:
 18-DEC-2003
                                                                                                                                                              04-SEP-2003
                                                                                                                                                                                                                                                                                                                  ď
                                                                                                                                                                                                                                                                                                                                                                                                               activity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  145
                                                                                                                                                                                                                                                         (GORI/) (SILV/) (HAFF/) )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match:
DB:
                                                                                                                                                                                                                                                                                                                  Goring
                                                                                                          Zea
 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     요
```

1044

578

558

518

924 538 984

804 498 864 1215

ð

ઠે

ઠે

```
1080 TATGGTTTAAACCCATCAGGCTCAAGTAGTGAAGCACAGAGCCGCCAAACCACAAGGGAA 1139
                                                                                                                                                                                                                                                  .020 ATGGCATTGGGAACTCAGGAGCTATGGTGCTAGCAGTGAGTACAGTGCCGCTACAAGTGAG
SerLeuValGlyTyrCys1leAlaGlyAlaLysArgLeuLeuValTyrGluPheValPro
                                                                                                                                                   AsnasnasnleuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrpSerThr
                                                                                                                                                                                                 Argleulys1leAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCysAsn
                                                                                                                                                                                                                                                                                                    CCTAAGATCCATCGTGATATCAAAGCTGCCAACATCCTTCTGGATTTTAAGTTTGAA
                                                                                                                                                                                                                                                                                                                                                  ThrGluLysSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThrGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                 ArgProvalAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAlaArgPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsnValTyrSerSerTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TyrGlyLeuTyrProSerGlySerSerGluGly------GlnThrThrArgGlu
                                     ValLeuProSerGlyLysGluValAlaValLysGlnLeuLysValGlySerGlyGlnGly
                                                                                                         GAGCGTGAATTCCAAGCTGAAGTTGAGATAATTAGCCGTGTCCATCACAAGCATCTTGTT
                                                                                                                                                                                                                                                                                    ProLysilelleHisArgAspileLysAlaSerAsnileLeulleAspPheLysPheGlu
                                                                                                                                                                                                                                                                                                                                      AlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThrAsnThrHisValSer
                                                                                                                                                                                                                                                                                                                                                                                      ThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGlyLyBLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAlaAlaCysValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HisSerAlaArgArgArgProArgMetSerGlnIleValArgAlaLeuGluGlyAsnVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnProThrSerAsp
                                                                                       GluArgGluPheGlnAlaGluValGluIleIleSerArgValHisHisArgHisLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MetGluMetGlyLys1leLysArgThrGlyGlnGlyTyrSerGlyProSer 646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     613
                                                                                                                                                                                                              303
                                                                                                                                                                                                                                                             363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     630
                63
                                       293
                                                                123
                                                                                        313
                                                                                                               183
                                                                                                                                      333
                                                                                                                                                              243
                                                                                                                                                                                       353
                                                                                                                                                                                                                                      373
                                                                                                                                                                                                                                                                                      393
                                                                                                                                                                                                                                                                                                               423
                                                                                                                                                                                                                                                                                                                                        413
                                                                                                                                                                                                                                                                                                                                                               483
                                                                                                                                                                                                                                                                                                                                                                                      433
                                                                                                                                                                                                                                                                                                                                                                                                              543
                                                                                                                                                                                                                                                                                                                                                                                                                                       153
                                                                                                                                                                                                                                                                                                                                                                                                                                                              503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             963
                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ठे
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                          셤
                                                                                     8
                                                                                                         셤
                                                                                                                                      ò
                                                                                                                                                           셤
                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                   8
                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The invention relates to producing a transgenic plant having increased plant height, number of branches, number of seed pods and/or seed production compared to a non-transgenic plant, and/or quicker flowering or later sensescence compared to a non-transgenic plant. The method involves transforming a plant with a vector including a Proline-rich Extensin-like Receptor Kinase (PERK) nucleic acid molecule or a nucleic acid molecule having PERK activity. The method, as well as the PERK nucleic acid molecule and polypeptide, are useful in increasing plant resistance to wounding and pathogens and in increasing plant growth and seed production. The nucleic acid molecule and polypeptide may also be used in producing transgenic plants or transgenic host cells. The present sequence represents a G. max PERK EST (expressed sequence tag) partial sequence (TIGR Accession No. TC123698)
                                                                                                                                                  transgenic; plant, proline-rich extensin-like receptor kinase; pathogen resistance; plant growth; seed production; soybean; gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrValHisLysGly 292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62
                                                                                                                                                                                                                                                                                                                                                                                                                                        plant
                                                                                                                                                                                                                                                                                                                                                                                                                                     an increased plant resistance, plant
transforming a plant with a nucleic
Extensin-like Receptor Kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                412 A; 291 C; 348 G; 437 T; 0 U; 0 Other;
     GGCTACAGTGGTGGCTACAGCTCAGGATACAGCGGAGCCTCG 1317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1488
312
444
36
5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         x ACF36556 (1-1488)
                                                                                                                                                                                                                                                                                                                                                                                                                                     Producing a transgenic plant having
growth or seed production comprises
acid molecule having a Proline-rich
activity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Disclosure; Fig 21c; 123pp; English.
                                                                                                                           max PERK partial EST sequence
                                                    BP
                                                                                                                                                                                                                                                                                                                                                                                        Haffani YZ
                                                    ACF36556 standard; DNA; 1488
                                                                                                                                                                                                                                                                           28-FEB-2003; 2003WO-CA000274
                                                                                                                                                                                                                                                                                                   28-FEB-2002; 2002CA-02373903
28-FEB-2002; 2002US-00086464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3.24e-40
1637.50
89.67%
78.59%
47.42%
                                                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                   (SILV/) SILVA N.
(HAFF/) HAFFANI Y Z.
                                                                                                                                                                                                                                                                                                                                                                                        Goring D, Silva N,
                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2003-712727/67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-086-464-2 (1-647)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                        GORI/) GORING D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 1488 BP;
                                                                                                                                                                                                                           WO2003072763-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ignment Scores:
                                                                                                                                                                                                    Glycine max.
                                                                                                    18-DEC-2003
                                                                                                                                                                                                                                                   04-SEP-2003
   1276
                                                                           ACF36556;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                273
                                                                                                                                                   PERK1; wound; ]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ..
S
                             œ
                            RESULT
                                                                ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
```

422

412 482 432 542 452 602 472 662 492 722 512 782 532 1019

592

842

552 902 572 962 1079

120

374

323

132

165

494

554

187 959 207 710 221 239

761

257

881

821

```
ATATCATCTTCATGGTTAGACCACTTAAAAACTTTGAGTACTAAGTTTATTTTCTCTAAT 1241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1242 CTATATATTCAAGAAAGTTGTAACCTTAATTTGTTGTTGTAGGGÄÄAAATCTTCCGGTAÄ 1301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        YPheSerIysSerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGl 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTCAACAAGAGCACTTTTACTTACCAAGAGCTTGCGGCTGCAACAGAGAGGTTTACGGA 941
                                                                                                                                                                                                                                              ArgAspGluGluAspAlaTyrTyrValProProProProProProGlyProLysAla--- 184
CCTCCTAAT---TCCTCTAATAACTCTCCCTTCCCTCCGTCACAGGCGGTGGAGGAGAA 263
                                                                                                                                                          GCTGGACTTTTGATGATGTTCTTATTATTGTGTGTCTTAGACGCAAAAAGAAGAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                317 nAlaGluValGluIleIleSerArgValHisHisArgHisLeuValSerLeuValGlyTy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SerProSerProProSerPro----SerSerAsp
                                                                                                                                                                                                                                                                                                                                                                                               GlyValAlaLeuLeuValIleValThrLeuIleCysLeuLeuCysLysLysArgArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ------GACTCCTTCTAC-----CCTGAACCCATGAAAGGTAAAAACATATAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TyrGlyGlyGlnGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAspHisVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ------itigecacctaaattcacaageccaaaccaacaattracages
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              762 AGGCGGTGGACCÁTCACCGCCTCCTCCCCCGATGCCTACAAGCGGAGAAGATTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAAAGAAGTAGCAGTTAAAGAGTTTAAAAGCCGGTAGCGGACAAGGAGAGAGGGGAGTTTCA
                                           ProThrThrProGlySerProProAlaProValThrProProThrArgAsnProPro
                                                                                   AGAGGAAATGGAGGAACAATGGTGGCAATGATACTCCACCGTCACGCGGCTCTCCTCCT
                                                                                                                                 SerValProGlyProProSerAsnProSerArgGluGlyGlySerProArg-----Pro
                                                                                                                                                                                                                                                                                                         ----LeuSerThrGlyValValValGlyIleAlaIleGly
                                                                                                                                                                                                                                                                                                                                                  GGAGGTGGAGGTGGAAGAAGTAATACGAATACAGCGATCATAGTTGGTGTATTAGTCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACACTCTTATGTTTCAACAAATAAGAAGCTTAGATTCTTTCATAAAATTTCAGGAAACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATATCAATACTATGGAAACAACAACAACAATGCTTCACAGAATTATCCGAA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cargracrcascoccarcacócccadrirraccrccrccrrcoccrcraccercragocccrcoc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         yLysGluValAlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   rCyslleAlaGlyAlaLysArgLeuLeuValTyrGluPheValProAsnAsnAsnLeuGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----Glu-GlyArgProThrM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ArgGln-ProProProProProProProProPheMetSerSerSerGly-----GlySe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       uAlaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrValHisLysGlyValLeuProSerGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         rAspTyrSer----AspArgProValLeuProProProSerProGlyLeuValLeuGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ValThrSerLeuProProProLysAlaProSerProPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            uLeuHisLeuHisGly-----
                                                                                                                                                                                                                       ProSer------
                                                                                                                                                                                                                                                                                                           Gly----
                                             83
                                                                                        264
                                                                                                                                   103
                                                                                                                                                                            324
                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                375
                                                                                                                                                                                                                                                                                                           133
                                                                                                                                                                                                                                                                                                                                                      435
                                                                                                                                                                                                                                                                                                                                                                                                 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                363
                                                                             원
                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                           윤
                                                                                                                                                                                                                                                                                                                                        원
                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                        용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ઠે
                                           8
                                                                                                                                 8
                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ਨੇ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         kinase (PERK). The PERK nucleic acids and polypeptides are useful for increasing the resistance of plants to wounding and pathogens. These are also useful for producing transgenic plants with increased wounding and pathogen resistance compared with a wild type plant, as well as in assays for identifying and developing compounds to inhibit and/or enhance polypeptide function directly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACTCATCATCATCGCCACCTCCTGATTCCACATCTCCACAGCTCCACAAGCTCCTAAAC 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      New proline-rich, extensin-like receptor kinase nucleic acids and polypeptides useful for increasing plant wounding or pathogen resistance, or for producing transgenic plants with increased wounding or pathogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ThrProProProAlaSerAlaProProProThrThrProSerSerProProProProSer 42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ThrileProThrSerProProSerSerArgSerThrProSerAlaProProProSer 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ProProThrProSerThrProGlySerProProProLeuProGlnProSerProProAla 82
                                                                                                                                                                                                                                                                  ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThrThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               rcrecrecracaacrecacererrerecarerecaecereraaraceaarreaaee
                                                                                                                                                                                                                                                                  Proline-rich extensin-like receptor kinase; PERK; resistance; plant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The present invention relates to proline-rich extensin-like receptor
    1140 ATGGAAATGAGAAGATGAAG---AACAATCAAGGTTTCAGTGGAAGTTCT 1187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 2520 BP; 717 A; 553 C; 537 G; 713 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2520
368
79
146
244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (1-2520)
                                                                                        BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Example, Fig 12, 91pp, English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           x AAF77096
                                                                                        standard; DNA; 2520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99US-0149466P
                                                                                                                                                                                                                                                                                                                                                                                                                                            18-AUG-2000; 2000WO-CA000966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2.93e-36
1507.00
53.47%
44.02%
43.64%
                                                                                                                                                                              entry)
                                                                                                                                                                                                                                                                                                           Arabidopsis thaliana
                                                                                                                                                                            (first
                                                                                                                                                                                                                     Arabidopsis gene #2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 2001-244305/25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Silva N;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-086-464-2 (1-647)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (GORI/) GORING D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SILVA N.
                                                                                                                                                                                                                                                                                                                                                      WO200114563-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
Best Local Similari
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     19-AUG-1999;
13-OCT-1999;
                                                                                                                                                                            17-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gnment Scores
                                                                                                                                                                                                                                                                                                                                                                                                 01-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          resistance
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ď,
                                                                                        AAF77096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ٣
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                43
                                                                                                                                 AAF77096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (SILV/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Goring
                                                               AAF77096.
XXX AAF77096.
XXX AAF
AAF
XXX AAF
XXX AAF
XXX BYO
DE Ara
XXX BYO
DO 01-
XXX AY
DO 01-
XXX AY
DO 01-
XXX AY
CG CG
CG CG CG
CG CG CG
CG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG CG
SG CG
SG CG CG
SG CG
SG CG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG
SG CG

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠ
```

1001

297

1061

317

1121

337

1181

```
Disclosure, Fig 12; 123pp; English.
                                                                                     BP.
                                                                                                                                                                                                                                                                                                                                           Haffani YZ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 2520 BP; 717 A; 552 C;
                                                                                                                                                                                                                                                                         28-FEB-2002; 2002CA-02373903.
28-FEB-2002; 2002US-00086464.
                                                                                      ACF36551 standard; DNA; 2520
                                                                                                                                                                                                                                                       28-FEB-2003; 2003WO-CA000274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3.58e-36
1504.00
53.47%
43.90%
                                                                                                                            (first entry)
                                                                                                                                                                                             Arabidopsis thaliana.
                                                                                                                                                                                                                                                                                                    GORING D.
SILVA N.
HAFFANI Y Z.
                                                                                                                                                                                                                                                                                                                                            Goring D, Silva N,
                                                                                                                                                                                                                                                                                                                                                                WPI: 2003-712727/67.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                          P-PSDB; ABR82940
                                                                                                                                                                                                                WO2003072763-A1
                                                                                                                            18-DEC-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment Scores:
                                                                                                                                                                                                                                    04-SEP-2003.
                                                                                                         ACF36551;
                                               2438
                                                                                                                                                                                                                                                                                                                                                                                                                          activity
                                                                                                                                                                                                                                                                                                      (GORI/)
                                                                                                                                                                                                                                                                                                                         (HAFF/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local S:
Query Match:
                                                                                                                                                                                                                                                                                                                 (SILV/)
                                                                                                                                                                  PERK1;
                                                                                                                                                                            wound;
                                                                           В
     셤
                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                      2018
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2317
                                                                                                                                     1541
                                                                                                                                                                                                                                                                                                                                                                                                              1958
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1481
                                                                                                                                                                           1601
                                                                                                                                                                                                                 1661
                                                                                                                                                                                                                                                                                                                                                                  1842 AGAAATCCGATGTTTTCTCTTACGGAGTTATGTTATTGGAACTTATAAACTGGAAAAACGAC 1901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2198 TAACTAAAAGTCTATTTTGTCAGAGAATAACAAACAAATGTTGTGGTTTTCAGATAGTA 2257
                                                                                                                                                                                                                                                      TAACAACACTCATGTATCTACTCGTGTGATGGGAACTTTCGGGTAAGCGTTTTACCGTAT 1721
                                                                                                                                                                                                                                                                                             1722 GATAAGATTGTTCGTGACACTCAAGAAACATAACCTTTGTAGACTAATCTACTTTGCTTC 1781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      585
                                                                                                                                                         413
                                                                                                                                                                                                                                    440
                                                                                                                                                                                                                                                                           440
                                                                                                                                                                                                                                                                                                                 454
                                                                                                                                                                                                                                                                                                                                                      474
                                                                                                                                                                                                                                                                                                                                                                                            489
                                                                                                                                                                                                                                                                                                                                                                                                                                   489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          545
                                                                                                                 TGACATTTTGCATTTGTTTATTCAGGTGGCTGATTTTGGATTAGCTAAGTTAACATCTGA
                                                                                                                                                                                                                                                                                                                              1782 TTTCCACAAACAIGIGIAGAIAICTAGCTCCAGAAIATGCTTCAAGCGGGTAAATTAACCG
                                                                                                                                                                                                                                                                                                                                                   luLysSerAspValPheSerPheGlyValValLeuGluLeuGluLeulleThrGlyArgArgP
                                                                                                                                                                                                                                                                                                                                                                                                      AlaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SerAsnValTyrSerSerTyrGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGlu
 etGluTrpSerThrArgLeuLysIleAlaLeuGlySerAlaLysGlyLeuSerTyrLeuH
                                                          1362 ACGAAGACTGTAAGTTTTAACATTCACCATTCTCATTTTCTTAACCAAGTTGCATAAAAC
                                                                                              1422 AGAGAAAGCTCTGTCTCTGACTAGTGTTATCTTTTTGGCTGAGAAAATGGTGCAGGCCAT
                                                                                                                                                                           GCTATGGTGATAAACTAGTAGCTTGCATTCATCTACGGTTTTTTGTTAAGACTACATTGA
                                                                                                                                                                                              ---LysValAlaAspPheGlyLeuAlaLysIleAlaSerAs
                                                                                                                                                                                                                                                                                                                 TyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrG
                                                                                                                                                                                                                                                                                                                                                                                           rovalAspAlaAsnAsnValTyrValAspAspSerLeuvalAspTrp-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                      TAACATATGTATCGTGTATATATGTTTTTTCGCCTTTTTTCGCGTACTAATGATCATGAATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         --- AlaArgProleuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAGGCTCGGCCTCTTATGGCTCGCGCGCTAGAAGATGGAACTTTAATGAGCTCGCAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGAGGCTTGAAGGCAACTACAACCCGCAAGAATGGCTCGAATGGTGACTTGTGCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AlaCysValArgHisSerAlaArgArgArgProArgMetSer--------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCTAGCATTCGTCATTCGGGGCGTAAACGTCCAAAGATGAG-CCAGGTGAATCAAATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlnIleVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGAGCGTTAGAAGGAGAAGTGTCCTTAGATGCTTTAAACGAAGGTGTGAAGCCAGGACAC
                                                                                                                                                                                                                                    pThrAsnThrHisValSerThrArgValMetGlyThrPhe-Gly-----
                                                                              isGluAspCys
                                                                                                                                                         Ala----
                   1302
                                                                                                                                                                           1542
                                                                                                                                                                                                                  1602
                                                                                                                                                                                                                                                                                                                                                                                                              1902
                                                                                                                                                                                                                                                                                                                                                                                                                                                      1959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2258
368
                                       388
                                                                             392
                                                                                                                   393
                                                                                                                                    1482
                                                                                                                                                         413
                                                                                                                                                                                              414
                                                                                                                                                                                                                                    426
                                                                                                                                                                                                                                                       1662
                                                                                                                                                                                                                                                                           440
                                                                                                                                                                                                                                                                                                                 441
                                                                                                                                                                                                                                                                                                                                                      454
                                                                                                                                                                                                                                                                                                                                                                                             474
                                                                                                                                                                                                                                                                                                                                                                                                                                   489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2318
                                                       g
                                                                                                                 8 8
                                                                                                                                                                       g
                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                엄
                                                                                                                                                                                                                                                                                                                                               S 8
                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    යි සි
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                g
                                     ò
                                                                           ò
                                                                                           ద
                                                                                                                                                   ò
                                                                                                                                                                                            δ
                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
```

```
The invention relates to producing a transgenic plant having increased plant height, number of branches, number of seed pods and/or seed production compared to a non-transgenic plant, and/or quicker flowering or later senescence compared to a non-transgenic plant. The method involves transforming a plant with a vector including a Proline-rich Extensin-like Receptor Kinase (PERK) nucleic acid molecule having PERK activity. The method, as well as the PERK nucleic acid molecule having perk activity. The method, as well as the PERK nucleic acid molecule and polypeptide, are useful in increasing plant resistance to wounding and pathogens and in increasing plant growth and seed production. The nucleic acid molecule and polypeptide may also be used in producing transgenic plants or transgenic host cells. The present sequence represents a PERKI polypeptide related protein encoding genomic DNA from A. thaliana (Accession NO. AAD15491)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Producing a transgenic plant having an increased plant resistance, plant growth or seed production comprises transforming a plant with a nucleic acid molecule having a Proline-rich Extensin-like Receptor Kinase
   ----AsnAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             transgenic; plant; proline-rich extensin-like receptor kinase; pathogen resistance; plant growth; seed production; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           538 G; 713 T; 0 U; 0 Other;
AspMetLysLysPheArgLysMetAlaLeuGlyThrGlnGluTyr-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2520
367
80
146
244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Arabidopsis PERK1 receptor related protein encoding
                                                                                                                                                                                                           GAAGGAACATCTAGTAATGATTCTAGAGATATGGGA 2473
                                                                                                                                                           603 ThrGlyGluTyrSerAsnProThrSerAspTyrGly 614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-086-464-2 (1-647) x ACF36551 (1-2520)
       989
```

108

159

40

210

9

270

84

66

-----ProThrArgAsn

75

us-10-086-464-2.rng

```
271 GTAGCTAATCCGTCACCGCAGACTCCAGAGAATCCTTCTCCACCTGCACCTGAAGGCTCA 330
                                                                                                                                                                                                                                                                                                                                                         ProProProProProProProPheMetSerSerGlyGlySerAspTyrSerAsp 243
                                                                                                                                                                                                                                                     SerProArgProProSerSerProSerProSerProSerSerAspGlyLeuSerThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----atatchecreciceceagatatetecectretrureaecec
                                                                                                                                                                                                                                          -----ProSerThrProGlySerProProLeu
                                                                                                                                                                                                                                                                                                                                                                                                                    391 ACTCCTCCTTCTCCTGGTGCCAATGATGACCGAAACAGAACCAATGGCGGAAACAACAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCACCTTCACCACCTCGGTCGATAAGCCCTCCTCAGAATAGTGGAGATTCAGACTCATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----GlyValValValGlyIleAlaIleGlyGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             148 AlaLeuLeuVallleValThrLeuIleCysLeuLeuCysLysLysLysArgArgArgAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----GlyProTyrGlyGlyGlnGlnGlnGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SerAspHisValValThrSerLeuProProProProLysAlaProSerProProArgGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MetSerSerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThr
                                                                                                                                      21 ThrThrThrProProProAlaSerAlaProProProThrThrProSerSerProProProPro
                                                                                                                                                                                        41 ProSerThrIleProThrSerProProProSerSerArgSerThrProSerAlaProPro
                                                                                                                                                                                                                                                                                         -----ProSerProProAlaPro-----Thr
                                                                                                                                                                                                                                                                                                                                                                                                                                                          GluGluAspAla-----TyrTyrValProProProProProProGlyProLysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      591 TCTCCTCAGGTCAACCACATGCACTACTACAATAACAATCCTTATGGAGGAGCACCCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTAATTACAGTTTAGTATAACTGGAATTTTAATTTGTAGCCTAATGGTGTTTTGATTAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       811 TTCAGAACGATCATAGTCTAATGGTTTCTGCTAGCTCCATATGGCAAAAGGATTAGATT-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----SerValProGlyProProSerAsnProSerArg----
                                                                                                                                                                                                                                                                                                                                          ThrProGlySerProProAla --- ProValThrPro-----
Conservative:
Mismatches:
Indels:
Gaps:
                                                            (1-2820)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TrpArgGlnGlnAsnAlaThr-----
                                                                                                                                                                                                                                                                                          ProSerProProThr-----
                                                              (1-647) x AAF77097
                                                                                                                                                                                                                                                                                                                                                                                           ProProPro------
50.00%
39.38%
42.85%
 Similarity:
                                                                                                                                                                                                                160 TCATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 G1,
                                                              US-10-086-464-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  204
                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                            001
                                                                                                                                                                                                                                                                                          96
                                                                                                                                                                                                                                                                                                                                            82
                                                                                                                                                                                                                                                                                                                                                                   331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   224
                                                                                                                                                                                                                                                                                                                                                                                                                                             103
                        Query Match:
DB:
 Percent Sim
Best Local
                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                            QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                      ð
                                                                                                           셤
                                                                                                                                    ò
                                                                                                                                                          g
                                                                                                                                                                                                         엄
                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                     õ
                                                                                                               2317
The present invention relates to proline-rich extensin-like receptor kinase (PERK). The PERK nucleic acids and polypeptides are useful for increasing the resistance of plants to wounding and pathogens. These are also useful for producing transgenic plants with increased wounding and pathogen resistance compared with a wild type plant, as well as in assays for identifying and developing compounds to inhibit and/or enhance
                                                                                                                                        SerAsnValTyrSerSerTyrGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGlu 585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      New proline-rich, extensin-like receptor kinase nucleic acids and polypeptides useful for increasing plant wounding or pathogen resistance, or for producing transgenic plants with increased wounding or pathogen
                                                                                                                                                                                                                                                                                                                                                                                                                    Proline-rich extensin-like receptor kinase; PERK; resistance; plant; ds.
                                                                                                    AGAGCGTTAGAAGGAGAAGTGTCCTTAGATGCTTTAAACGAAGGTGTGAAGCCAGGACAC
                                                              TAACTAAAAGTCTATTTTTGTCAGAGAATAACAAACAAATGTTGTGGTTTTCAGATAGTA
                                                                                       ArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGln
                                                                                                                                                               AGTAACGTTTACGGGTCATTGGGAGCAAGCTCGGATTATAGTCAGACATCTTACAATGCA
                                                                                                                                                                                        AspMetLysLysPheArgLysMetAlaLeuGlyThrGlnGluTyr-----AsnAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2820
367
                                                                                                                                                                                                                                                         GAAGGAACATCTAGTAATGATTCTAGAGATATGGA 2473
                                                                                                                                                                                                                                          614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                       ThrGlyGluTyrSerAsnProThrSerAspTyrGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>:</u>;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Seguence 2820 BP; 819 A; 629 C; 577 G; 795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
Matches:
                                                                                                                                                                                                                                                                                                                   ВР
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Example, Fig 13, 91pp, English.
                                                                                                                                                                                                                                                                                                                  AAF77097 standard; DNA; 2820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99US-0149466P.
99US-0159122P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000WO-CA000966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2e-35
1479.50
                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                             Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                           Arabidopsis gene #3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 2001-244305/25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Silva N;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GORING D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SILVA N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO200114563-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19-AUG-1999;
13-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                     17-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Goring D,
                                                              2198
                                                                                                               2258
                                                                                                                                                                                                                                          603
                                                                                                                                                                                                                                                                 2438
                                                                                                                                        999
                                                                                                                                                               2318
                                                                                                                                                                                        586
                                                                                                                                                                                                                 2378
                                                                                                                                                                                                                                                                                                                                            AAF77097;
                                     543
                                                                                       546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (GORI/)
(SILV/)
                                                                                                                                                                                                                                                                                         g
                                                                                                                                                           ద
                                                                                                                                                                                                                                                                셤
                                     8
                                                                                     ò
                                                                                                                                    ò
                                                                                                                                                                                        ò
                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                       ò
```

450

116 510

102

136

570 147 630 167 690 184 750

```
The invention relates to producing a transgenic plant having increased plant height, number of branches, number of seed pods and/or seed production compared to a non-transgenic plant, and/or quicker flowering or later senescence compared to a non-transgenic plant. The method involves transforming a plant with a vector including a Proline-rich Extensin-like Receptor Kinase (PERK) nucleic acid molecule or a nucleic acid molecule having PERK activity. The method, as well as the PERK nucleic acid molecule and polypeptide, are useful in increasing plant resistance to wounding and pathogens and in increasing plant growth and seed production. The nucleic acid molecule and polypeptide may also be used in producing transgenic plants or transgenic host cells. The present sequence represents a PERKI polypeptide related protein encoding genomic DNA from A. thaliana (Accession NO. CAA18823)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                an increased plant resistance, plant
transforming a plant with a nucleic
Extensin-like Receptor Kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTAGCTAATCCGTCACCGCAGACTCCAGAGAATCCTTCTCCACCTGCACCTGAAGGCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GIGGATICATCTCCTGCCCCTGAACC---TCAAATGGGACACCCACCGTCAAACGGAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           :::
TCG------CCGTCTAATGAGTCATCGCCGCCAACACCACCTTCTTCACCACCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCATCA-----ATATCTGCTCCTCCGCCAGATATCTCGCTTCTTTTTCACCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -- ProThrArgAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MetSerSerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ThrThrThrProProPlaSerAlaProProProThrThrProSerSerProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProSerThrIleProThrSerProProProSerSerArgSerThrProSerAlaProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProSerProProThr-------ProSerThrProGlySerProProLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----Progla----Thr
                                                                                                                                                                                                                                                                                                                                                                                                                                                BP; 819 A; 630 C; 576 G; 795 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2820
366
99
152
318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Thr ProGlySerProProAla --- ProValThr Pro-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (1-2820)
                                                                                                                                Producing a transgenic plant having growth or seed production comprises acid molecule having a Proline-rich
                                                                                                                                                                                                         Disclosure, Fig 13; 123pp; English
                                                         Haffani YZ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-086-464-2 (1-647) x ACF36552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3.42e-35
1471.50
49.89%
39.27%
42.62%
               SILVA N.
HAFFANI Y Z.
                                                         Silva N,
                                                                                     WPI; 2003-712727/67
P-PSDB; ABR82941.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
Best Local Similarity:
Query Match:
DB:
ä
GORING
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 2820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment Scores:
Pred. No.:
                                                          'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               85
            (SILV/)
(HAFF/)
                                                                                                                                                                               activity
                                                         Goring
 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
```

```
1085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TICATCTAACAGAATGTTTTCTTGTATTAACAAAACCTTTAAGTATGGTTTCTCTTTAAT 1445
                                                                                                                                                                                                                                                                                                                                     986
                                                                                        167
                                                                                                             690
                                                                                                                                   184
                                                                                                                                                                              185
                                                                                                                                                                                                    810
                                                                                                                                                                                                                        194
                                                                                                                                                                                                                                                                     203
                                                                                                                                                                                                                                                                                          929
                                                                                                                                                                                                                                                                                                                223
                                                                                                                                                                                                                                                                                                                                                            243
                                                                                                                                                                                                                                                                                                                                                                                                        263
                                                                                                                                                                                                                                                                                                                                                                                                                                                  283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              303
                                                                                                                                                        TCTCCTCAGGTCAACCACGATGCACTACTACAATAACAATCCTTATGGAGGAGCACCCTCA 750
SerProArgProProSerSerProSerProSerProSerSerAspGlyLeuSerThr
                                                                                                     TTCAGAACGATCATAGTCTAATGGTTTCTGCTAGCTCCATATGGCAAAAGGATTAGATTA
                                                                                                                                                                                                                                                                                                                               ThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                              1086 ACATACGATGAACTGTCCATTGCAACAGAAGGTTTCGCTCAGTCAATTTGCTAGGACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLysGluValAlaValLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1206 AGTCTTAAACTTGGAAGTGGACAAGGGGAACGCGAGTTTCAAGCAGGTTGATATCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SerArgValHisHisArgHisLeuValSerLeuValGlyTyrCysIleAlaGlyAlaLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCGGGTAATCATCACAAGCCAACATTGATTGATTATTGGAGTCCTTGTAGGAGCAGGG
                                                                                                                                                                                                                          ---GlyProTyrGlyGlyGlnGlnGlnGln
                                                                                                                                                                                                                                                                                                                SerAspHisValValThrSerLeuProProProProLysAlaProSerProProArgGln
                                                                                                                                                                                                                                                                                                                                                             ProProProProProProProPheMetSerSerSerGlyGlySerAspTyrSerAsp
                                                                                                                                                                                                                                                                                                                                                                                 987 ccrigrercregrecti-------cacácrearecriccaactraaccegr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----GlyGluGlyArgProThrMetGluTrpSerThrArgLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ulyslleAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCys------
                      rcaccircaccicegrosaraascccrccrcagaarasigsasarrcagacrcarca
                                              GlyValValGlyIleAlaIleGlyGlyVal
                                                                                         AlaieuleuValIleValThrLeuIleCysLeuLeuCysLysLysLysArgArgArgAsp
                                                                                                                                    GluGluAspAla------TyrTyrValProProProProProProGlyProLysAla
                                                                                                                                                                                                                                                                                     ArgProValLeuProProSerProGlyLeuValLeuGlyPheSerLysSerThrPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ArgLeuLeuValTyrGluPheValProAsnAsnAsnLeuGluLeuHisLeuHis----
                                                                                                                                                                                                    751 ĠĠTAATTACAGTTTAGTATAACTGGAATTTAATTTGTAGCCTAATGGTGTTTGATTAGGT
                                                                                                                                                                                                                                                                      195 TrpArgGlnGlnAsnAlaThr----
                                                                                                                                                                                                                           Gly-----
                                                                                                                                                                                                                                                                                                                                                             224
                                                                                                                                                                                                                                                                                                                                                                                                         244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          304 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1386
                                                                                                                                                                                                                                                                                                                                                                                                                                                    264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      324
   117
                                                                    571
                                                                                         148
                                                                                                                                     168
                                                                                                                                                          691
                                                                                                                                                                                185
                                                                                                                                                                                                                          186
                                                                                                                                                                                                                                                811
                                                                                                                                                                                                                                                                                                                  204
                                                                                                                                                                                                                                                                                                                                        930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         362
                                              137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                               ద
                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      중 음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                 g
                                      8
                                                                 ద
                                                                                         ò
                                                                                                          ద
                                                                                                                              ò
                                                                                                                                                        g
                                                                                                                                                                              ò
                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠે
```

AGAGACGGCTCCACACCATCACCGTCGTCAGGGAACAGAACTTCCGGTGACGTGGC

451 103

391 ACTCCTCCTCCTCCTGGTGCCAATGATGACGGAAACAGAACCAATGGCGGAAACAACAAC -----SerValProGlyProProSerAsnProSerArg------GluGlyGly

ProProPro-------

331 100

g

8

ò

ф

```
------GAAA 2739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The present invention relates to proline-rich extensin-like receptor kinase (PERK). The PERK nucleic acids and polypeptides are useful for increasing the resistance of plants to wounding and pathogens. These are also useful for producing transgenic plants with increased wounding and pathogen resistance compared with a wild type plant, as well as in assays for identifying and developing compounds to inhibit and/or enhance
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             resistance,
pathogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACTCAGCTCTTCCACCTGTTGATTCCTCTCCTCCTAGTCCACCAGCTGATTCATCATCATCA 157
                                SerSerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThrThr
                                                                                                                                                                                                                                               plant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  New proline-rich, extensin-like receptor kinase nucleic acids polypeptides useful for increasing plant wounding or pathogen or for producing transgenic plants with increased wounding or
                                                                                                                                                                                                                                               receptor kinase; PERK; resistance;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2880
325
92
160
376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Thr-----AhrProProAlaSer--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                       2771
                                                                                  640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               569 G; 804
                                                                                              etGluMetGlyLyslleLysArgThrGlyGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (1-2880)
                                                                                                                                                     BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ΰ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Example, Fig 11; 91pp, English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-086-464-2 (1-647) x AAF77095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      polypeptide function directly
                                                                                                                                                     2880
                                                                                                                                                                                                                                                                                                                                                                 99US-0149466P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BP; 814 A; 693
                                                                                                                                                                                                                                                                                                                                           18-AUG-2000; 2000WO-CA000966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1.5e-27
1209.50
43.85%
34.17%
35.03%
                                                                                                                                                                                                                                               Proline-rich extensin-like
                                                                                                                                                     DNA;
                                                                                                                                                                                                                                                                      Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 2001-244305/25.
                                                                                                                                                                                                                        #1
                                                                                                                                                                                                                                                                                                                                                                                                                                      D, Silva N;
                                                                                                                                                     standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                   GORING D. SILVA N.
                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                              WO200114563-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 2880
                                                                                                                                                                                                                                                                                                                                                               19-AUG-1999;
13-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment Scores:
                                                                                                                                                                                                                        Arabidopsis
                                                                                                                                                                                                 17-MAY-2001
                                                                                                                                                                                                                                                                                                                   01-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       resistance.
                                                          2695
                                                                                                       2740
                                   610
                                                                                 630
                                                                                                                                                    AAF77095
                                                                                                                                                                           AAF77095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   22
                                                                                                                                                                                                                                                                                                                                                                                                   (GORI/)
(SILV/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                     Goring
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .. No. .
                                                                                                                              RESULT 13
                                                       셤
                                                                                                   g
                                                                                                                                                     ò
                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                      2044
                                                                                                                                                                                                                                                                                                                                                                                         1805 CTTATTGTGTAAATATATGCAGGTGGCAGATTTTGGATTGGCTAAGCTATCTCAAGACAA 1864
                                                                                                                                                                                                                                                         1865 CTATACTCATGTCTCCACTCGCGTCATGGGAACTTTTGGGTAAGCAGCTTTGTAAAATGT 1924
                                                                                                                                                                                                                                                                                                       1925 CTCAACTCATCCACCTTATTTAGTTTCTTTCACTTGTTTTTAACATTTTCTTGGATTCA 1984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAGCAATCAGACATTCAGCAAGAAGACGCCCTAAGATGAGCCAGGT-TCAAAAACTCATA 2400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2401 CCACTTGTTGGTTCTATTGTTATTTTTTACTCACAATTAATCTTGATGATAAATGTGAC 2460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2461 ATACTAATGAATCTTGAAACATGTGTATGGTAAATGAAAAGATTGTACGAGCACTÄGAAG 2520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGGCAAGGCCTTTGTGTTTGAAAGCAGCTCAAGATGGAGATTACAACCAATTGGCTGATC 2281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          570
                                               404
                                                                                                                                                                                                                                                                                                                                                                           erPheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnV 480
  391
                                                                                                                                                                                      ---LysValAlaAspPheGlyLeuAlaLysIleAlaSerAspTh 427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   590 heArgLysMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnProT 610
                                                          ||||||||::::|||||||
| CATTCTTCTTGATTTCAGTTTTGAGAC-CAAGGTATGTGTGTATATGACTCTTGTAC
                                                                                                                                                                                                                                                                                                                                            1985 GATACTTAGCTCCAGAGTATGCATCAAGCGGAAAGTTATCCGACAAATCTGATGTTTTCT
                        CTTTATCTCACATATTTGCATCAGTTTCTATCTCGCTCTCTACAATATTTGAAAGATTGT
                                              -----AsnProLysllelleHisArgAspileLysAlaSerAs
                                                                                                                                                                                                                                  rAsnThrHisValSerThrArgValMetGlyThrPhe-Gly---------
                                                                                                                                                                                                                                                                                                                              --TyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPheS
                                                                                                                                                                                                                                                                                                                                                                                                                                        --GAAATGGAAGATAGCTTGGTAGATTGGGTAAGTCGGTCCCCGCCTCTTCGGTTTACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTTTAATCCCAAAACACTTTCCAAAGCAAAAACAGAAACAAATCTTACTATTGTTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -- AlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 laLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAlaAlaA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             --ValArgAlaLeuGluG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       erSerTyrGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMetLysLysP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         550 lyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsnValTyrS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                laCysValArgHisSerAlaArgArgArgProArgMetSerGlnIle-----
                                                                                                                                                                                                                                                                                                                                                                                                                          480 alTyrValAspAspSerLeuValAspTrp-----
                                                                                            nileLeulleAspPheLysPheGluAla-----
                                                                     1626
                        1566
                                                                                                                  1686
                                                                                                                                        413
                                                                                           404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2342
                                              392
                                                                                                                                                                                      414
                                                                                                                                                                                                                                   427
                                                                                                                                                                                                                                                                                 440
                                                                                                                                                                                                                                                                                                                                                                           460
                                                                                                                                                                                                                                                                                                                                                                                                   2045
                                                                                                                                                                                                                                                                                                                                                                                                                                                  2104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2521
 391
                                                                                                                                                                                                                                                                                                                              441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       570
                  a
                                                                                                            g
                                                                                                                                                        ď
                                                                                                                                                                            8 6 6 6
                                                                                                                                                                                                                                                                         8 6 6 6
                                                                                                                                                                                                                                                                                                                                                                         6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8 6 8
                                              ð
                                                            셤
                                                                                  ठे
                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                        6 6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8 6 8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    음 참
```

28

٠,

```
2465
                                                                                                                                                                                                                                                                                                                2678
                                                                                                                                                                                                                                                                                                                                                                                                             2780
                                                                                                                                                     2466 GAGACAGCCGCTGCATGTGTTAGACATTCTGGTCCAAAACGCCCACGCATGGTTCAGGTA 2525
                                                                                                                                                                                                                                                                                                                                                                                     614
                                                                                                                                             543
                                                                                                                                                                                                                                                                                                                                       594
                                                                  2346 TAAATGAACTCACAGGGGGGCCCGCTGCTTCTCAAAGCCATTGAGACCGGAGATTTAAGC
                                                                                                          2406 GAACTGATTGATACACGGCTTGAAAAGCGTTATGTGGAGCATGAGATCTTCAGAATGATC
                                                                                                                                                                                                                                                        2286 AACTTTCAAACATTCTTCAATAATAGTAAGATTGGCCCTAGTATACTTATATAGTACTTA
                                              -- AlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGlu
                                                                                           GlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetVal
                                                                                                                                          525 AlaCysAlaAlaAlaCysValArgHisSerAlaArgArgArgProArgMetSerGln---
                                                                                                                                                                                                                 2526 ATTCTGACTAACCAAAAGTCCAAAGCTCCCATATATAGTAACAAGTGATTTCTCACATCT
                                                                                                                                                                                                                                         -----IleValArgAlaLeuGluGlyAsnValSerLeu
                                                                                                                                                                                                                                                                                         SerAspLeuAsnGluGlyMetArgProGlyGlnSerAsnValTyrSerSerTyrGlyGly
                                                                                                                                                                                                                                                                                                    ||||:::::: |||::::::
GGAGATATTAGCAACGGAATCAAAATTGGGCAA------
                                                                                                                                                                                                                                                                                                                                      SerThrAspTyrAspSerSerGlnTyrAsnGluAspMetLysLysPheArgLysMetAla
                                                                                                                                                                                                                                                                                                                                                                                     LeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnProThrSerAspTyrGly
                                                                                                                                                                                                                                                                                                                                                                                                     PERK1; transgenic; plant; proline-rich extensin-like receptor kinase; wound; pathogen resistance; plant growth; seed production; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Arabidopsis PERK1 receptor related protein encoding DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                          2781 AACTACTCCCAAAAGCTCTTCAGAT 2807
                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuTyrProSerGlySerSerSerGlu 623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Haffani YZ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACF36550 standard; DNA; 2880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        28-FEB-2002; 2002CA-02373903
28-FEB-2002; 2002US-00086464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28-FEB-2003; 2003WO-CA000274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Arabidopsis thaliana.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SILVA N.
HAFFANI Y Z.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Silva N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 2003-712727/67.
P-PSDB; ABR82939.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (GORI/) GORING D.
(SILV/) SILVA N.
(HAFF/) HAFFANI Y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO2003072763-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18-DEC-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          04-SEP-2003.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Goring D,
                                                                                             505
                                            490
                                                                                                                                                                                                                                                                                                               2646
                                                                                                                                                                                                                                                                                                                                                             2679
                                                                                                                                                                                                                                                                                                                                                                                     595
                                                                                                                                                                                                                                                                                                                                                                                                                                   615
489
                                                                                                                                                                                                                                                                                         555
                                                                                                                                                                                                                                         544
                                                                                                                                                                                                                                                                                                                                       575
                                                                                                                                                                                           543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACF36550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          요
                                                           g
                                                                                         ð
                                                                                                                 요
                                                                                                                                          δ
                                                                                                                                                          g
                                                                                                                                                                                        ठे
                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                      용
                                            ò
                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                             ठ
                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                            ठ
```

The invention relates to producing a transgenic plant having increased plant height, number of branches, number of seed pods and/or seed production compared to a non-transgenic plant, and/or quicker flowering or later senescence compared to a non-transgenic plant. The method involves transforming a plant with a vector including a Proline-rich Extensin-like Receptor Kinase (PERK) nucleic acid molecule or a nucleic acid molecule having PERK activity. The method, as well as the PERK nucleic acid molecule and polypeptide, are useful in increasing plant resistance to wounding and pathogens and in increasing plant growth and seed production. The nucleic acid molecule and polypeptide may also be used in producing transgenic plants or transgenic host cells. The present sequence represents a PERKI polypeptide related protein encoding genomic DNA from A. thaliana (Accession NO. AAC98010) plant Producing a transgenic plant having an increased plant resistance, plant growth or seed production comprises transforming a plant with a nucleic acid molecule having a Proline-rich Extensin-like Receptor Kinase Disclosure; Fig 11; 123pp; English. activity

Alignment Scores: No.:

Sequence 2880 BP; 814 A; 693 C; 569 G; 804 T; 0 U; 0 Other;

2880 325 92 160 376 26 Length:
Matches:
Conservative:
Mismatches:
Indels: Gaps: 1.5e-27 1209.50 43.85% 34.17% 35.03% Percent Similarity: Best Local Similarity: Query Match: DB:

x ACF36550 (1-2880) US-10-086-464-2 (1-647)

ò 원 à 셤 g ઠે 셤

ઠે

> 셤 ð 셤 8 g ò a

8

CCTTCTAGTGGACCTGTGGTGTCTCCATCTCACATCCCCTAGTAAAGGAACTCCTACT 694

635

용

ò

셤

ठे

595 LeuGlyThrGlnGluTyrAsnAlaThrGlyG	λo –	•
2679 AGCACAACTTATGACTCAGGGCAATACAATG	387 WHISGLUASDCVAASSN	장 옵
575 SerThrAspTyrAspSerSerGlnTyrAsnC	1568 ITTAGAGTGGTCTAAGAGAGTCCGGATCGCTATAGGATCAGCCAAAGGGTTGGCATATCT	<u>අ</u>
2646 GGAGATATTAGCAACGGAATCAAAATTGGGC	367 rMetGluTrpSerThrArgLeuLysIleAlaLeuGlySerAlaLysGlyLeuSerTyrLe 387	<i>8</i> 1
2586 GAAAACTIAICIACITCITCGAAAIAAGGIIG 555 SerAspLeuAsnGluGlyMetArqProGlyG	1508 TITITITAGCTTTACGTGTTAGACTGACTTCGCTTTAGGAAAGGGTTTGCCAGT 1567 Ov	qu
	364	ò
2526 ATTCTGACTAACCAAAAGTCCAAAGCTCCCA	355 ABnLeuGluLeudisClyGlu	රි සි
543	1388 GTTGGTTACTGCATTTCAGACCAGCATAGATTGCTTATCTATGAGTATGTTTCTAATCAA	q ₀
2466 GAGACGCCGCTGCATGTTAGACATTCTG	335	ò
	1328 GAATTCAAAGCAGAGGTTGAGATCATCAGCGCGTTCATCATCACCCATTTGGTCTCTCTG 1387	qa
505 GIYLEUALAASPALALYSMETASNASIAITYI	315	ò
		q _O
490AlaArgProLeuLeuA	295 ProSerGlyLysGluValAlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArg 314	ò
2286 AACTTTCAAACATTCTTCAATAATAGTAAGA	2/5 Freesercturated Levels for the Company of the C	ž 8
489	1148 ATACTCGGAAGTGGCCAGACTCATTTCAGTTACGAAGAGCTTGCTGAGATAACACAAGGC	අධ
2226 AACCAGTTGACCAGACTCAGCCTCTAGGAGA	255 ValleuGlyPheSerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGly 274	ò
ZIGO CIGAIAGAICCGAIGIAIICICAIICGGGG	1124 TCAAGTGGCACACCTGACTCTGCT 1147	qa
	235 SerSerGlyGlySerAspTyrSerAspArgProValLeuProProProSerProGlyLeu 254	, vo
2106 GCATGACATGTTTTGTGTTAAGGTACCTAGG	Albertakionserioseirioriorioriorioriorioriorioriorioriorio	₹ 5
441TyrLeuAl	1049 TCACAGCAACAATCCTCTATGGGAAACAGTTATGGTACAGCTGGT	a d
2046 TTATATATGGCTTGAGGCAACAAATTGGATC	195 TrpArgGlnGlnAenAlaThrProProSerAspHisValValThrSerLeuProProPro ::: :::::: ::: :::	δ O
	989 TACGGICAAGAICCAGGIAAAGGAIACTCCTCIGGICCTAATGGITCAAIGIATAACAAT 1048	Db
440	178ProProPro	ò
	929 CTTCTATGTGCTTGAATCATCTCTGACTATCTTTGCTTTTGATGTAGATGCATTCTTA 988	qa
424 aSerAspThrAsnThrHisValSerThrArg	177	ò
	869 CATCCCAATTTCTCTGTTAAATCAGGTTTAAAAATCTCACCTTTATCTCTCTGTCAT 928	7 점
415	176 Propro-	ò
1807 -GGCAATAATGAAATCCTCCTTTTCGTTAAA	815 AGAAGAAAAAAAAAAAAA————AACATTGATAATCACTCACACACACACA 868	5 A
414 8	/55 GIIGGIAIGGCIGIAGCC	9 6
	140 ValGlyIleAlaIleGlyGlyValAlaLeuLeuValIleValThrLeuIleCysLeuLeu 159	ò t
	695 CCAAACCAAGGCAATGGAGATGGCGGTGGCGGCTGTCAAGGGAAGGCTATG 754	qa
393	130SerSer	ò
***************************************	-	

SDITELEUILEASPPHELYBPHEGLUALALY 414 --valalaAspPheGlyLeuAlaLysIleAl 424 ValValLeuLeuGluLeulleThrGlyArgA 473 eValArgAlaLeuGluGlyAsnValSerLeu 554 :||||||||||||||:: :: rGrGAGAGCATTGGACTGCGACGAGACTCG 2645 nGluaspmetlyslysPheArglysmetala 594 IAICCTIGITITIAITITACAGGICATCCGAA 1746 AATCTATCTTATGACTGTAAAGTTTTAGTTA 1865 CITAITGAICCAAIGCCIGAIGAAAGIIIG 2045 CCAAACCTGAATCTTTATTGATCGTATGGCT 2105 3AAGAGAGTTTGGTTGAATGGGTAAGAATCC 2285 SATTGGCCCTAGTATACTTATATAGTACTTA 2345 ||| |TATGTGGAGCATGAAGTCTTCAGAATGATC 2465 CATATATAGTAACAAGTGATTTCTCACATCT 2585 3CAA----- 2678 414 AspAspSerLeuValAspTrp------ 489 AsnArgAlaSerGluGlnGlyAspPheGlu 504 YTYrAspArgGluGluMetAlaArgMetVal 524 543 yGlnSerAsnValTyrSerSerTyrGlyGly 574 LeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnProThrSerAspTyrGly 614 595

---SerProProSerAsnSerThrThrThrProProPla

13

```
CTGGAATCACCTCCTCCTCCTTCGAATCTCCATCTCCACGTCTCTCACGTCTCA 336
                                                                                                                       CCGCCTCTTCCGGTTGAATCCCCACCGTCTCCTCCTATAGAATCACACCACGCCTCCTCTA 276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ThrProGlySerProProLeuPro------GlnProSerProProAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    337 GCTCCTTCCGGTTCACCGCCATTACCCTTCCTTCCCGCCAAACCTTCTCCGCCG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ccircerrecerreceaareaacecececegeaacacacerrerecreered
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Agenerecerceces - - ruscentraceacescenences en a secreta estado en a secreta estado en a secreta estado en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a secreta en a 
                                                                                                                                                                                                                                                                        53 ArgSerThrProSerAlaProPro-----Ser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Thr Thr ProGlySer ProProAla ProVal Thr ProPro----- Thr Arg Asn ProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ccaccecrcrcaaceaceccarrrccrcrcrcrcacrcccccccraagaagrccccr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SerAsnProSerArgGluGlyGlySerProArgPro-
                                                                                                                                                                                 SerAlaProProThrThrProSerSerProPro-
    SerSerAlaProSerProGlyThrGlySerProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ------SerSerSerSerSer-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ---ProSerSerProSerPro----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pro-----
                                                                                             . . . . . .
                                                                                                                                                                                 28
                                                                                                                                                                                                                                                                        40
                                                                                                                                                                                                                                                                                                                  217
                                                                                                                                                                                                                                                                                                                                                                                                           277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     135
                                셤
                                                                                 ð
                                                                                                                         ద
                                                                                                                                                                   ∂
                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                         원
                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ठे
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ઠે
                         2780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The invention relates to producing a transgenic plant having increased plant height, number of branches, number of seed pods and/or seed production compared to a non-transgenic plant, and/or quicker flowering or later senescence compared to a non-transgenic plant. The method involves transforming a plant with a vector including a Proline-rich Extensin-like Receptor Kinase (PERK) nucleic acid molecule or a nucleic acid molecule having PERK activity. The method, as well as the PERK nucleic acid molecule and polypeptide, are useful in increasing plant resistance to wounding and pathogens and in increasing plant growth and seed production. The nucleic acid molecule and polypeptide may also be used in producing transgenic plants or transgenic host cells. The present sequence represents a PERKI polypeptide related protein encoding genomic DNA from A. thaliana (Accession NO. CAA18590)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Producing a transgenic plant having an increased plant resistance, plant
growth or seed production comprises transforming a plant with a nucleic
acid molecule having a Proline-rich Extensin-like Receptor Kinase
                         GG.
                                                                                                                                                                                                                                                                                                                                                                                    transgenic; plant; proline-rich extensin-like receptor kinase; pathogen resistance; plant growth; seed production; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 3060 BP; 797 A; 766 C; 592 G; 905 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                       Arabidopsis PERK1 receptor related protein encoding DNA
2781 AACTACTCCCAAAAGCTCTTCAGAT 2807
                                                                   LeufyrProSerGlySerSerGlu 623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Disclosure; Fig 14; 123pp; English
                                                                                                                                                                                                      ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Haffani YZ;
                                                                                                                                                                                                      ACF36553 standard; DNA; 3060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28-FEB-2002; 2002CA-02373903
28-FEB-2002; 2002US-00086464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28-FEB-2003; 2003WO-CA000274
                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SILVA N.
HAFFANI Y Z.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Silva N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 2003-712727/67
P-PSDB; ABR82942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO2003072763-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GORING
                                                                                                                                                                                                                                                                                             18-DEC-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment Scores
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'n
                                                                      615
                                                                                                                                                                                                                                                   ACF36553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (SILV/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               activity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (GORIV)
                                                                                                                                                                                                                                                                                                                                                                                    PERK1;
                                                                                                                                                                                                                                                                                                                                                                                                           wound;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Goring
                                                                                                                                                                             ò
```

390 101

83

52

67

108

-----SerValProGlyProPro

444

120

504

126

621

131 681

561

```
CAATCCAAAACTCCCTCAAAAGGTATAAACTTTGAGATCAATTTGTTTCAGACTGTCACT 1041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TAAAATGTAATGTAATTGTAAGTTATGATCTTTTTTGCTTGGATCAGTTCAACATCATGG 1101
                                            741
                                                                                                                                                                                135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gGlnGlnAsnAlaThrProProSerAspHisValValThrSerLeuProProProLy 216
134
                                                                                         134
                                                                                                                                                                                                                                                                        ThrGlyValValValGlyIleAlaileGlyGlyValAlaLeuLeuValIleValThrLeu 155
                                                                                                                                                                                                                                                                                                                  921
                                                                                                                                                                                                                                                                                                                                                             IleCysLeuLeuCysLysLysLysArgArgArgAspGluGluAsp-AlaTyrValPr 175
                                                                                                                                    CCTCCTATTGGGCCTGTTATAGAGCCCAAGACGAGTCCAGCCGAATCAATATCTCCGGGA 801
                                                                                                                                                                                                                           861
                                                                                                                                                                                                                                                                                                                                                                                                            CTCTTTGTCTTCTACAGAGCTACCAGAAATAGAAATAACAACAGCAGCTCTGCTCATCAT 981
                                                                                                                                                                                                                           802 ACGCCACAGCCACTGGTTCCGAAGAGTCTACCTGTAACGACGTCGTATCACCGATCATCC
                                                                                                                                                                                                                                                                                                  GCAGCAGTAACTCTTCCTTTGGGCCCAGCGGGCCAATTACCGGATGGGACCGTAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ---GlyProLygAlaGlyGlyProTyrGlyGlyGlnGlnGlnGlnTrpAr
  -----AspGlyLeu-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                         oProProProPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                         175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
```

3060 342 72 185 456 31

Length: Matches: Conservative: Mismatches: Indels:

8.1e-27 1185.00 39.28% 32.45%

Percent Similarity: Best Local Similarity:

Query Match:

(1-3060)

x ACF36553

US-10-086-464-2 (1-647)

us-10-086-464-2.rng

	11 da		g ò	2122 GT
177 TOTAL OFFICE PARTY PERMAPARY PROVIDED ROSE PRODUCTORY AND TOTAL CONTROL 121 122 123 12		BALABFROSErProProArgGlnProProProProProProProProProProProPheMetSerSerSerSerSerSerSerSerSerSerSerSerSerS	ΩP	2182 GJ
1.00 1.00		rGlyGlySerAspTyrSerAspArgProValLeuProProProSerProGlyLeuValLe	දු පු	441 2242 AT
1222 TRANSCRANTEGRANTSTETCCRAMANACTITOMAGAACTEGGGATTTTC 1281 QY 473 1222 TRANSCRANTEGRANTSTETCCRAMANACTITOMAGAACTEGGGATTTTC 1281 QY 489 1223 GAGGGATACTTTTTTTCCAMAGAACTTTCAMANA 1141 QY 489 1224 GAGGGATACTTTTTTTCCAMAGAACTTTCAMANA 1141 QY 489 1225 GAGGATACATTTTTCCAMAGAACTTTCAMAGAACTTTCAMAGAACTTTTCAMAGAACTTCAMAGAACTCAMAGAACTTCAMAGAACTTCAMAGAACTTCAMAGAACTTCAMAGAACTTCAMAGAACTTCAMAGAACTTCAMAGAACTTCAMAGAACTTCAMAGAACTTCAMAGAACTTCAMAGAACTTCAMAGAACTCAMAGAACTTCAMAGAACTTCAMAGAACTTCAMAGAACTTCAMAGAACTTCAMAGAACTTCAMAGAACTTCAMAGAACTTCAMAGAACTTCAMAGAACTTCAMAGAACTTCAMAGAACTTCAMAGAACTTCAMAGAACTACAMA		uGlyPheSerLysSerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSe	λ S	453 rG 1 2302 TG
1282	п	TTCAATGCCATCTGGAATGTTCTCCTACGAAGAACTTTCAAAAGCAACTGGTGGATTTTC	ò	473 gE
286 TOTALYPEGIUVALAITAVALLYSOLINGANGINEULYSOLINGANG	н	rGluhlaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrvalHisLySGlyValLeuProSe 	ΩD	2362 AT
13.42 CGGGANGANGTHCGGATGANGANTGGAGGANANTT 10.0 D.D. 24.22 31.6 CGGANGANGTHCGGATGANGANTGGAGGANANTT 10.0 D.D. 24.22 31.6 CGLANIAGIUVAIGUAITACTANGCANTGANTGGATGANGANATT 10.0 D.D. 24.22 32.6 CGLANIAGIUVAIGUAITACTANGANTGANTGANTGANTGANTGANTGANTGANTGANTG	ı	rGlyLysGluValAlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPh	Ġ	
116	н	:]	a :	2422 TP
136		eGlnalaGluValGluIleIleSerArgValHisHisArgHisLeuValSerLeuValGl	ć, q	2482 AT
1462		vTvrCvsIleAlaGlvAlaLvsArdLeuLeuValTvrGluPheValProAsnAsnAsnLe	ò	490 -
1556 uclubeuHisteuHistily			qq	2542 CJ
1522 GANTTCCACCTTGATAGATATATCATTTCATCTTTTA 1581 1582 1583 15		uGluLeuHisLeuHisGly3	හි සි	508 80
363	Т	GGAGTTCCACTTGCATGGTAAAATAGATATATGATTTCATCCTTTTTTGATTTTGTCTTTA 1	3 8	
10.00 1.00	•	GluGlyArgProThrMetGl 3	d d	
150 11 11 11 11 11 11 11	-1	מיווראיואומיומאסאאייאייאייאייאייאייאייאייאייאייאייאייא	ò	544 -
1702 GGATTGTGTTTTCTTCTTCATAATGGGAATGGCCTTTTTTGGCTTTTCGAC		UTrpserinfArgLeunysIleAlaLeUGlyserAlaLysGlyLeuserfyrLeuHisGl 	qq	2721 GJ
1702 GGATTGTTGTTTTTTTTTTTTTTTTTTTTTTTTTTTT		15.115.115.115.115.115.115.115.115.115.	ò	545 -
1762 ACTGATATTGATTTCTGGTGCTTGTAATGCAGCTAATATTCACCGTGATAT 1821 09 555 1762 ACTGATATTGATTTCTGGTGCTTGTAATGCAGCTGATATTTCACCGTGATAT 1821 09 2841 1822 CAAAGCAGCTAATATCCTTCTAAATTTGAGGAAAGGTGATCTGTTTAAT 1881 09 575 1822 CAAAGCAGCTAATATCCTTCTAAATTTGAGGCAAAGGTGATCTGTTTAAT 1881 09 585 1822 CAAAGCAGCTAATATCCTTCTAAATTTGAGGCAAAGGTGATCTGTTTAAT 1881 09 585 1823 CAAAGCAGCTAATATCCTTCTAAATTTGAGGCAAAGGTGATTTGGTTTAATAGTCACATTTAATTTAAAGAAGTTTTAAAGAAGTTTTGGTTTATAGAAGGTTATTA	-	Marker 1 1 1 1 1 1 1 1 1	qa	2781 TJ
1762 ACTGATATTGATTGTGTGTGTTGTAATGCAGCAGTTGAATTCACCGTGATAT 1821		l Tallalia Hallalla Indiana	ò	555 er
40 eLysAlaSerAsmIleLeulleAspPheLysPheGluAlaLys 1822 CAAAGCAGCTAATATCCTTCTAGATTTGAGGCAAAGGTGATCTGCTCTTTAAT 1881 414		A CHGAPATTATTATTATTATTATTATTATTATTATTATTATTAT	qq	2841 G
1822 CAAAGCAGCTAATATCCTTCTAGATTCGAATTTGAGGCAAAGGTGATCTTTAAT 1881 1822 CAAAGCAGCTAATATCCTTCTAGATTCGAATTTGAGGCAAAGGTGATCTTGCTTTAAT 1881 1822 CAAAGCAGCTAATATCCTTCTAGATTCCAAATTTGAGGCAAAGGTGATCTTGCTTTAAT 1881 1822 CAAAGCAGCTAATATTTAGAACAGAGTTTGCCCATTTTGGGTTTATAGTCACCAT 1941 415		10. (0.11) 10. (0.11) 1. (ò	575 er
414	,	CD/8A1ASCEIABILITECENTICASEIREUJSEIR	qq	2892 CC
1882 CTTATCAAAGTTTTGGTTTTTAGAACAGAGTTTGGCTTTATAGTCACCAT 1941 Qy 615 415			ò	595 et
415		CTTATCAAAGTTTAGGTTTTAGAACAGAGTTTAGCCCATTTTCGGTTTATAGTCACCAT	qa	2936
1942 TTGTTCTATTTAACAAGATTACATGTAGTTCTTGTTCTTCTTCAGGTCTCTGA 2001		a de la la la la la la la la la la la la la	ò	615 et
417 pPheGlyLeullaLygileAlaSerAspThrAsnThrHisValSerThrAr 434			අු	2976 TT
		ophedly.enala.vellealaSeraenThraenThrHieValSerThrar	ò	635 1
434 gvalMetGlyThrPheGly	N		qa	3036 TZ
440		gvalmetGlyThrPheGly	Search Job ti	.complete me : 666

22 GTTTAAAAATTTTAATTTACGTTTCAAGTTTCAAGTTTCAAGTTTCTCCTTCCT
2 2 2 2 2 2 2 2 3 4 4 4 5 6 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6

earch completed: April 24, 2004, 22:22:00 ob time : 666 secs

```
GenCore version 5.1.6
Copyright (c) 1993 - 2004 Compugen Ltd.
```

```
- nucleic search, using frame_plus_p2n model
OM protein
```

April 24, 2004, 20:12:36; Search time 3601 Seconds (without alignments) 5365.407 Million cell updates/sec 3453 1 MSSAPSPGTGSPPSPSNST......REMEWGKIKRTGQGYSGPSL 647 US-10-086-464-2 Title: Perfect score: Sequence: Run on:

2.0 2.0 0.5 Xgapop 10.0 , Xgapext Ygapop 10.0 , Ygapext Fgapop 6.0 , Fgapext Delop 6.0 , Delext **BLOSUM62** Scoring table:

27513289 segs, 14931090276 residues Searched:

55026578 Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0 Maximum DB seq length: 200000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

Database :

gb_est3:*
gb_est4:*
gb_est5:*
em_estfun:* em_estba:*
em_esthum:*
em_estin:*
em_estov:*
em_estov:*
em_estpl:*
em_estpl:*
em_estpl:*
em_htc:*
gb_est1:* gb_est2:* gb_htc:* EST:*

em_gss_rod:*
em_gss_phg:*
em_gss_vrl:*
gb_gssl:* em_gss_pln:* em_gss_vrt:* hum: * em gss inv:* #:8nw fun: * #: mam em_gss_pro: em_988_ em gss 19: 20: 21:

29: gb_gss2:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

ription		84771 BP18477	35142 EL01N03	37 EST6727	36655 EST6730	08099 EST5824	36122 EST6724	96561 EST4952	55196 OSJNEC0	41204 GA Ea0	39231 RF02.11	08241 Zea mav	2	58715 GA Ea0	74	573	1193	99	849	135	4	õ	CA269355 SCBGRT307	5	4	9	11 OGVGH7		6 SCMCFL	3 OBLBD1	101601 1	6 ES	E CE	2 6	CAZ48316 SCCCFL509	3	4 5	DOIL IMPOSOLS	SERIORS CABINIZO	99754 946178GI	7152 SCMCFL50	2873 E012278-	907 EM1_4_B1	CA999610 S345P_H09	602 GA_Ed00	551753 AV55175	
		BP18477	CD43514	CF43643	CF43665	BM40809	CF43612	BG59656	CB65519	BG44120	CD83923	AY10824	AY10824	BM35871	CA07217	BU09957	BQ99919	CA23715	CC72584	CA76513	CC66875	CK28339		CF47838	CA16470	CG333	CG43643	BQ40412	CA29804	CF01566	BQ13424	BQ50686	CK09649	CAUSOS	CA24831	0000000	CF24344	1004709	BQ84968	BU49975	CA23715	BQ58287	BF1,7690	ð	BQ41060	5115	
Lengt		7	-	1	9	1		7	1	1		053 1		666 1	.1	.1	1	1 1	9	809 14	2	9	618 14	1	3	938 29	6	6	~ .		-	m .	·	٠,	- ·	٠,	-i -	•	7		-		3	7 %	3	<u>.</u>	
	;	÷	ä	ä	ä	ä	ö	ö	ö	6	6	6	6	σ.	6	ω.	7.	7.	7.	9	Ġ.	Ġ.	26.7	Ġ	Ġ	٠.	ė	Ġ	Ġ	ė.		٠.	٠.	'n	2.55 V. 5	ċ	٠.		'n	'n	'n	'n.	'n	25.7	25.7	25.7	
Ö	-	'n	090.	8	9	90	90	90	90	4	9	7	102	5	10	983	961	931	8	929.5	928	923.5	921	921	92	919.5	17.	91	•	0	0	6	•	٠,	300	ם מ	. (η,	σ,	σ,	σ	88		æ	æ		
60		7	7	m	4		φ	7	60	σ	10,	11	175	13	14	15	16	17	c 18	19	20	c 21	22	23	24	c 25	~	27	28	53	30	m	32		ى ر	יי ני	7	\ r	38	39	40	41	42	43	44	45	

ALIGNMENTS

BP184771 BNS rice panicle cDNA, germ cell generating stage Oryza sativa (japonica cultivar-group) cDNA, mRNA sequence. BP184771.1 GI:32948199 EST. VERSION KEYWORDS SOURCE ORGANISM RESULT 1 BP184771 LOCUS DEFINITION ACCESSION

Oryza sativa (japonica cultivar-group)
Oryza sativa (japonica cultivar-group)
Bukaryota, Vizidiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;
Ehrhartoideae; Oryzeae; Oryza.

715

835

N

```
EST 03-JUN-2003
                                                                                                                                              580 SerSerGinTyrAsnGluAspMetLysLysPheArgLysMetAlaLeuGlyThrGlnGlu 599
                                                                                                                                                                                                                                                    Zea mays
Zea mays
Eukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Magnoliophyta, Liliopsida, Poales, Poaceae, PACCAD
clade, Panicoideae, Andropogoneae, Zea.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /mol_type="mRNA"
/culfivar="W2"
/culfivar="W2"
/tissue_type="Endosperm of 7-23DAP"
/clone_lib="Endosperm 3"
/clone_lib="Endosperm 3"
//note="Vector: pBluesGript SK-; Site_1: EcoRI; Site_2: //note="Vector: pBluesGript SK-; Site_1: EcoRI; Site_2: //note="Vector: pBluesGript SK-; Site_1: EcoRI; Site_2: //note="Vector: pBluesGript SK-; Site_1: EcoRI; Site_2: //note="Vector: pBluesGript SK-; Site_1: EcoRI; Site_2: //note="Vector: pBluesGript SK-; Site_1: EcoRI; Site_2: //note="Vector: pBluesGript SK-; Site_1: EcoRI; Site_2: //note="Vector: pBluesGript SK-; Site_1: EcoRI; Site_2: //note="Vector: pBluesGript SK-; Site_1: EcoRI; Site_2: //note="Vector: pBluesGript SK-; Site_1: EcoRI; Site_2: //note="Vector: pBluesGript SK-; Site_1: EcoRI; Site_2: //note="Vector: pBluesGript SK-; Site_1: EcoRI; Site_2: //note="Vector: pBluesGript SK-; Site_1: EcoRI; Site_2: //note="Vector: pBluesGript SK-; Site_1: EcoRI; Site_2: //note="Vector: pBluesGript SK-; Site_1: EcoRI; Site_2: //note="Vector: pBluesGript SK-; Site_1: EcoRI; Site_2: //note="Vector: pBluesGript SK-; Site_1: EcoRI; Site_2: //note="Vector: pBluesGript SK-; Site_1: EcoRI; Site_2: //note="Vector: pBluesGript SK-; Site_1: EcoRI; Site_2: //note="Vector: pBluesGript SK-; Site_1: EcoRI; Site_2: //note="Vector: pBluesGript SK-; Site_1: EcoRI; Sk-; Site_2: //note="Vector: pBluesGript SK-; Site_2: //note="Vector: pBluesGript SK-; Site_2: //note="Vector: pBluesGript SK-; Site_2: //note="Vector: pBluesGript SK-; Site_2: //note="Vector: pBluesGript SK-; Site_2: //note="Vector: pBluesGript SK-; Site_2: //note="Vector: pBluesGript SK-; Site_2: //note="Vector: pBluesGript SK-; Site_2: //note="Vector: pBluesGript SK-; Site_2: //note="Vector: pBluesGript SK-; Site_2: //note="Vector: pBluesGript SK-; Site_2: //note="Vector: pBluesGript SK-; Site_2: //note="Vector: pBluesGript SK-; Site_2: //note="Vector: pBluesGript SK-; Site_2: //note="Vector: pBluesGript SK-; Site_2: //note="Vector: pBluesGript SK-; Site_2: //note="Vector: pBluesGript SK-; Site_2: //note="Vector: pBluesGript SK-; Si
                                                                                                                                                                          659 TCTGGCCAATACAACGAGGACATGAAGAAGTTCAGGAAGATGGCTTTT---ACCAACAAT
                                                                                                                                                                                                                                                                                                                                       SerSerSerGluGlyGlnThrThrArgGluMetGluMetGlyLysIleLysArgThrGly
                                                               560 GlyMetArgProGlyGlnSerAsnValTyrSerSerTyrGlyGlySerThrAspTyrAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Lai,J., Dey,N., Kim,C.S., Becraft,P., Larkins,B., Linton,E. Messing,J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CD435142 #RNA linear EST #L0180355003.b Endosperm_3 Zea mays cDNA, mRNA sequence. CD435142. GI:31350785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           824
206
27
41
3
                                                                                                                                                                                                                                                                                                                                                                                              -------GlnGlyTyrSerGlyProSer 646
                                                                                                                                                                                                                                                                                                                                                                                                                        836 TACAGTGGCTACAGCTCAGGATACAGCGGAGCCTCA 871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequencing of the maize endosperm ESTs
Unpublished (2002)
Contact: Lai, Jinsheng
Dr. Joachim Messing's lab
Waksman Institute, Rutgers University
190 Frelinghuyeen Rd., Piscataway, NJ 088
Fax: 732-445-5735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Email: jlai@waksman.rutgers.edu
Seq primer: T3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       x CD435142 (1-824)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    organism="Zea mays"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4.54e-26
1090.50
84.12%
74.37%
31.58%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-086-464-2 (1-647)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  334
                           542
                                                                                                          602
                                                                                                                                                                                                                                                                                                               620
                                                                                                                                                                                                                                                                                                                                                                                                640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 2
CD435142
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score:
                                                                                                 g
                                                                                                                                                                                g
                                                                                                                                                                                                                                                                     요
                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      원
                                                         ò
                                                                                                                                                8
                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AATGGTAACTACGAGGAGTTAGTAGATCCTCGGCTTGGGAAGGATTTCAATCCCAATGAG 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ArgMetSerGlnIleValArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGlu 559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                    /organism="Oryza sativa (japonica cultivar-group)"
/mol type="MRNA"
/mol type="mRNA"
/db xref="taxon:39947"
/tisue_type="panicle"
/dev stage="germ cell generating stage"
/clone_lib="pNS rice panicle cDNA, germ cell generating stage"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATTAAGGCGTCAAACATTCTTCTTGATTTTAAGTTTGAATCTAAGGTTGCTGATTTTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGATATCTAGCACCAGAGTACGCATCTTCTGGCAAGCTCACGAAATCAGATGTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          480 ValTyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               362 ACATATATGGATGACAGCTTGGTTGACTGGGCAAGGCCTTTACTGATGCAAGCACTTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IleLysAlaSerAsnIleLeuIleAspPheLysPheGluAlaLysValAlaAspPheGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LeuAlaLysIleAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyTyrLeuAlaProGluTyrAlaAlaSerGlyLyBLeuThrGluLygSerAspValPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGlu
                                                                                                                                                                                                                                                        system
                                                                                                                                     National Institute of Genetics
Yata 1111, Mishima, Shizuoka 411-8540, Japan
Tel: 81-55-981-6872
Fax: 81-55-981-6879
Email: kmoriguc@lab.nig.ac.jp
cDNA clone obtained from nuclear transportation trap synchoding a protein similar to Oryza sativa (japonica cultivar-group) putative receptor protein kinase PERKI.

10.1084
      1 (bases 1 to 1084)
Moriguchi, K., Ito, Y., Yamazaki, Y. and Kurata, N.
Finding of various plant nuclear proteins using ye
transportation trap system - a proteomal approach
Unpublished (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1084
212
30
43
7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-086-464-2 (1-647) x BP184771 (1-1084)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   =
::
=
                                                                                                          Contact: Kazuki Moriguchi
Plant Genetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4.98e-26
1092.50
82.88%
72.60%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             . No.
      REFERENCE
AUTHORS
TITLE
                                                                                     JOURNAL
                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DRIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
```

353

Thu

8 6 8 6 8 6

8686

8 6

ठ ద ઠે ብ ራ

g ઠે 용 ठे a

g જે

윱

```
/tissue type="(allus, roots, and young bulbs"
/clone lib="normalized cDNA library of onion"
/clone lib="normalized cDNA library of onion"
/clone lib="normalized cDNA library of solion"
ECORV (5/); Site 2: Not1 (3/); Equal molar amounts of mRNA from callus, roots, and young bulbs were combined to synthesize the library. Normalization to enrich for low-copy transcripts was performed by proprietary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValGlullelleSerArgValHisHisArgHisLeuValSerLeuValGlyTyrCyslle 339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValAlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGlu 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               440 GlyTyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPhe 459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            260 LysSerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTTCTTGGGCAAGGTGGATTTGGATATGTGCACAAAGGAGTACTTCCAAACGGTAAAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LeuLeuGlyGlnGlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLysGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuHisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   400 IleLysAlaSerAsnIleLeuIleAspPheLysPheGluAlaLysValAlaAspPheGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LeuAlaLysIleAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTTGCAAAGTTCACTGTTGAAAATAACACCCATGTTTCTACACAGGTCATGGGAACATTT
                                                                                                                                                                                /mol_type="mRNA"
/cultivar="Red Creole(bulbs), unknown(callus), Ebano
USDA-ARS and University of Wisconsin
1575 Linden Drive, Madison, WI 53706, USA
Tel: 608-262-1434
Fax: 608-262-4743
Email: mjhavey@facstaff.wisc.edu
TIGR sequence name ACACM44TR. For more information:
http://haveylab.hort.wisc.edu
Seq primer: CAG GAA ACA GCT ATG ACC.
Location/Qualifiers
1. 788
                                                                                                                                                                                                                                                                                                                                                                                                                                           788
202
20
00
00
00
                                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                               organism="Allium cepa"
                                                                                                                                                                                                              Texas Legend(roots)"
/db xref="taxon:4679"
/clone="ACACM44"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-086-464-2 (1-647) x CF436437 (1-788)
                                                                                                                                                                                                                                                                                                                                                                                                                                         6.07e-26
1086.00
87.79%
77.86%
31.45%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match:
DB:
                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                             Alignment S
Pred. No.:
                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CF436437 100 788 bp mRNA linear EST 04-SEP-2003 EST672782 normalized cDNA library of onion Allium cepa cDNA clone
                                                                                                                                                                                                              473
                                      LeuLysileAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCysAsnPro 393
                                                                                                                                                LysileileHisArgAspileLysAlaSerAsnileLeuileAspPheLysPheGluAla 413
                                                                                                                                                                   AGATCATCCATCGTGACATAAAGGCATCTAACATTCTTCTTGACTTCCAATTTGAGCT 241
                                                                                                                                                                                                                                                                              453
                                                                                                                                                                                                                                                                                             GAAAAATCCGATGTATTTTCCTTCGGAGTCATGCTTCTTGAGCTTATTACTGGGCGGGGA 421
                                                                                                                                                                                                                                                                                                                                                                                                                             LeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsn 513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SeralaargargargaroargMetSerGlnIleValargalaLeuGluGlyAsnValSer 553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsnValTyrSerSerTyrGly 573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               574 GlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMetLysLysPheArgLysMet 593
                     AsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrpSerThrArg 373
                                                                                                   ProValAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAlaArgProLeu 493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyTyrAspArgGluGluMetAlaArgMetValAlaCysAlaAlaAlaCysValArgHis 533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GACTICAATCCTAATGAGATGGCAAGAATGATAGCCTGTGCAGCTGCATGTGTACGCCTT 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Asparagales; Alliaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 (bases 1 to 788)
Havey,M.J., Cheung,F., Van Aken,S., Utterback,T. and Town,C.D.
Expressed Sequence Tags from a normalized library of mixed onion
tissues (Allium cepa)
Unpublished (2003)
                                                                                                                                                                                                                                                                             ArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       719 AGCAGCTCCGATTACGATTCTGGCCAGTACAACGAGGACATGAAGAAGTTCAAGAAGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rerecacerceaceaceacerareaercaeercerreeeecrrreeaeeecaarerer
                                                                                                                                                                                                                                                                                                                                             GluLysSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThrGlyArgArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnProThr 610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Department of Horticulture
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CF436437.1 GI:34459127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACACM44, mRNA sequence
CF436437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Allium cepa (onion)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Allium cepa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Allium.
                                                                                                                122
                                                                                                                                                                                182
                                                    62
                                                                                                                                                  394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           514
                     354
                                                                                    374
                                                                                                                                                                                                                                                                                                              302
                                                                                                                                                                                                                                                                                                                                                                                                             474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         662
                                                                                                                                                                                                                                                                              434
                                                                                                                                                                                                                                                                                                                                              454
                                                                                                                                                                                                                                                                                                                                                                              362
                                                                                                                                                                                                                                                                                                                                                                                                                                            422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CF436437
```

```
US-10-086-464-2 (1-647) x CF436655 (1-789)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BM408099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EST
                                                                             280
                                                                                                       62
                                                                                                                                                         122
                                                                                                                                                                                                             182
                                                                                                                                                                                                                                                                                           360
                                                                                                                                                                                                                                                                                                                  302
                                                                                                                                                                                                                                                                                                                                            380
                                                                                                                                                                                                                                                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 5
BM408099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                유
                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                           g
                                                                                                원
                                                                                                                                                                                   à
                                                                                                                                                                                                      g
                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                     ∂
                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                      ⋧
                                                                                                                         &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /mol_type="mRNA"
/cultivar="Red Creole(bulbs), unknown(callus), Ebano &
/cultivar="Red Creole(bulbs), unknown(callus), Ebano &
/do xref="taxon:4679"
/do xref="taxon:4679"
/clone="ACACK26"
/clone="ACACK26"
/clone="YCACK26"
/clone="Totalus, roots, and young bulbs"
/clone="Totalus, roots, and young bulbs were combined to
from callus, roots, and young bulbs were combined to
synthesize the library. Normalization to enrich for
low-copy transcribts was performed by proprietary
techniques of Invitrogen."
                                                                                                                                                                                                                                                                            CF436655 170-28P-2003 CF43000 normalized cDNA library of onion Allium cepa cDNA clone
                                                                                           499
              601
                                        SerPheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsn 479
                                                                                                                                             GlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGlu 519
                                                                                                                                                                        781
                                                                                                                                                                                                                                                                                                                                                                               Bukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Magnoliophyta, Liliopsida, Asparagales, Alliaceae,
                                                                                                                                                                                                                                                                                                                                                                                                                                    Town, C.D.
mixed onion
                                                      TCATTTGGAGTCATGCTTTTGGAGCTGATTACTGGAAAGCGACCAGTTGATGCAACCCAA
                                                                                                                                                            480 ValTyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGlu
                                                                                                        ACTIATACAGATGATAGTTTGGTCGATTGGGCAAGACCATTGCTGCAGAAGGCTATGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Havey MJ
Contact: Havey MJ
Department of Horticulture
USDA-ARS and University of Wisconsin
1575 Linden Drive, Madison, WI 53706, USA
Tel: 608-262-41830
Fax: 608-262-41830
Fax: 608-262-41830
Fax: 608-262-41830
Fax: GAS-262-41830
Fax: GAS-262-41830
Fax: GAS-2630
TIGR sequence name ACACK26TR. For more information:
http://haveylab.hort.wisc.edu
Seq primer: CAG GAA ACA GCT ATG ACC.
Location/Qualifiers
1. 789
                                                                                                                                                                                                                                                                                                                                                                                                                   1 (bases 1 to 789)
Havey,M.J., Cheung,F., Van Aken,S., Utterback,T. and Expressed Sequence Tags from a normalized library of Trisques (Allium cepa)
Unpublished (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2203
244
0 0 3 5 5 .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'organism="Allium cepa"
                                                                                                                                                                                                                                                                                                                                CF436655.1 GI:34459345
                                                                                                                                                                                                                                                                                                      ACACK26, mRNA sequence.
CF436655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1.82e-25
1071.00
86.64%
77.48%
31.02%
                                                                                                                                                                                                                                                                                                                                                        Allium cepa (onion)
Allium cepa
                                                                                                                                                                                                 MetAla 521
                                                                                                                                                                                                                        ATGGCA 787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                            Allium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alignment Scores:
Pred. No.:
                                        460
                                                                  602
                                                                                                                     662
                                                                                                                                              200
                                                                                                                                                                        722
             542
                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                   RESULT 4
CF436655
LOCUS
                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                              VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORIGIN
                                                             g
                                                                                                                 g
                                                                                                                                                                    å
                                       ò
                                                                                         à
                                                                                                                                          ò
                                                                                                                                                                                                ò
```

```
759 bp mRNA linear EST 10-MAR-2003 potato roots Solanum tuberosum cDNA clone CPR033021 5'
                                                            299
                                                                                                                                                 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Solanum tuberosum
Eukaryota; Viridiphantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
asternids; lamiids; Solanales; Solanaceae; Solanum.
1 (bases 1 to 759)
van der Hoeven, R., Sun, H., Karamycheva, S.A., Tsai, J., Van Aken, S.,
                                                                                                                                                                                             181
                                                                                                                                                                                                                                            339
                                                                                                                                                                                                                                                                                                                                                                                                                          379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     440 GlyTyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPhe 459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            460 SerPheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsn 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       480 ValTyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGlu 499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  721
                                                                                                    121
                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                   340 AlaGlyAlaLysArgLeuLeuValTyrGluPheValProAsnAsnAsnLeuGluLeuHis 359
                                                                                                                                                                                                                                                                                                                                                                             301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              500 GlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGlu 519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                    CTTCTTGGGCAAGGTGGATTTGGATATGTGCACAAAGGAGTACTTCCAAAGGATAAGAA
                                                                                                                                                                             602 TCATTTGGAGTCATGCTTTTGGAGCTGATTACTGGAAAGCGACCAGTTGATGCAACCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2 AAGAGCACTTTCACATATGAAGAATTGGCGATAGCTACAAATGGGTTTTCCGACTATAAT
                                                                                                                                                                                                                                            320 ValGluIleIleSerArgValHisHisArgHisLeuValSerLeuValGlyTyrCysIle
                                                                                                                                                                                                                                                                                                                                                           SeralaLysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LeuAlaLysIleAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPhe
                                                            LeuLeuGlyGlnGlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLysGlu
                                                                                                                                                      100 ValAlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGlu
                                                                                                                                                                                                                                                                 LeuHisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                      |||||||||||:::
TTGCATGGAAAAGATGTTCCACCTATGGATTGGCCAACGCGGTTAAAAATTGCTTTGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                362 TCTGCCAAGGGGTTGGCATATCTCCATGAAGATTGTCATCCCAAAATTATTCATCGTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTTGCAAAGTTCACTGTTGAAAATAACACCCATGTTTCTACACGAGTCATGGGAACATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                400 IleLysAlaSerAsnIleLeulleAspPheLysPheGluAlaLysValAlaAspPheGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Solanum tuberosum (potato)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BM408099
BM408099.1 GI:18259729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EST582426 potato roend, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          520 MetAla 521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATGGCA 787
```

541

491

531

```
785 bp mRNA linear EST 04-SEP-2003
EST672467 normalized cDNA library of onion Allium cepa cDNA clone
ACACJ26, mRNA sequence.
                                                                                Eukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Magnoliophyta, Liliopsida, Asparagales, Alliaceae;
                                                                                                                                                                                      532 ArgHisSerAlaArgArgArgProArgMetSerGlnIleValArgAlaLeuGluGlyAsn 551
                                                                                                                                                                                                        1 (bases 1 to 785).
Havey,M.J., Cheung,F., Van Aken,S., Utterback,T. and Town,C.D.
Expressed Sequence Tags from a normalized library of mixed onion
tissues (Allium cepa)
Unpublished (2003)
                492 ProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAlaLysMet
                                                                                                                          512 AsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAlaAlaAlaCysVal
                                                                                                                                                       GAAAATGATTATAACCATAATGAGATGGCTCGCATGGTTGCTTGTTGTTGTTGTTGTGTG
 ArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Fax: 608-262-4743
Email: mjhavey@facstaff.wisc.edu
TIGR sequence name ACACJ26TR. For more information:
http://haveylab.hort.wisc.edu
Seq primer: CAG GAA ACA GCT ATG ACC.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      785
204
134
0
                                                                                                                                                                                                                                              552 ValSerLeuSerAspLeuAsnGluGlyMetArgPro 563
                                                                                                                                                                                                                                                                   Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        USDA-ARS and University of Wisconsin
1575 Linden Drive, Madison, WI 53706,
Tel: 608-262-1830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Allium cepa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Contact: Havey MJ
Department of Horticulture
                                                                                                                                                                                                                                                                                                                                                                                                           CF436122.1 GI:34458812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2.61e-25
1066.00
86.64%
77.86%
30.87%
                                                                                                                                                                                                                                                                                                                                                                                                                                        Allium cepa (onion)
Allium cepa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Allium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment Scores:
                              482
                                                                                                                                                                                                                   662
                                                                                                                                                                                                                                                                                722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                              LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
                                                                                                                                                                                                                                                                                                               RESULT 6
CF436122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                      g
                                                                                     셤
                                                                                                                                                  a
                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                             g
                                                             ò
                                                                                                                     8
                                                                                                                                                                                    ઠ
                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                         /clone lib="potato roots"
/note="Vector: pBluescript SK(-); Site 1: EcoRI; Site 2:
Xho1; supplier: Cornell University, Tanksley lab;
sequencing; The Institute for Genomic Research. Roots were
isolated from in vitro grown stem cuttings on CM medium.
Roots were isolated two weeks after placing the stem
cuttings from in vitro grown plants on medium."
                                                        Contact: Robin Buell
The Institute for Genomic Research
9712 Medical Certer Dr. Rockville, MD 20850, USA
Bmail: potato-array@tigr.org
This clone can be obtained from the University of Arizona Genomics
Institute. Orders can be made through URL:
//genome.arizona.edu/orders/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        372 ThrArgLeuLys1leAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCys 391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AsnProLysilelleHisArgAspIleLysAlaSerAsnIleLeulleAspPheLysPhe 411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGlyLy8 451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       332 ValSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuValTyrGluPheVal 351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62 GIGICTCTTGTTGGATACTGCATTACTGGGGCTCAGAGACTGCTTGTTTATGAGTTTGTT 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrpSer 371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 182 ATACGGCTAAAGATTGCTCTAGGGTCAGCTAAAGGACTGGCATATCTGCATGAAGACTGC 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCCACCAGAGTGATGGGAACCTTTGGGTATTTGGCTCCAGAATATGCTTCCTCTGGAAAG 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTTACAGACAAGTCAGACGTATTCTCCTTTGGTGTAATGCTTCTTGAGTTGATAACTGGA 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   122 CCAAACAATACTTTIGGAATTTCATTTACACGGAAAGGGAAGGCCTCCTTTGGATTGGCCA 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThrGly 471
Utterback, T., Chiemingo, A., Bougri, O., Buell, C.R., Ronning, C., Tankeley, S. and Baker, B.
Generation of ESTs from potato roots
Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GluAlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThrAsnThrHisVal
                                                                                                                                                                                                                                /mol_type="mRNA"
cultiva="kennebec"
/db xref="taxon:4113"
/clone="cPR033021"
/tissue_type="roots"
/dev_stage="in vitro grown stem cuttings"
/lab_host="SOLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  759
200
25
27
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                     l. .759
/organism="Solanum tuberosum"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-086-464-2 (1-647) x BM408099 (1-759)
                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.04e-25
1069.00
89.29%
79.37%
30.96%
                                                                                                                                                                    primer: T3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ..
Q
                              TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Aliqnment
                                                                                                                                                                                    PEATURES
                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                       DRIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              성 유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   중 음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
```

셤 ò ያ ያ

a ò 셤 ∂

```
/db xref="taxon:4113"
/clone="cSTS15A23"
/tissue_type="sprouting eyes from tubers"
/tissue_type="sprouting eyes from tubers"
/dav_stage="12-14 weeks post harvest"
/dab_host="soln"
/clone_lib="cSTS"
/note="Vector: pBluescript SK(-); Site_1: EcoRI; Site_2:
/note="Vector: pBluescript SK(-); Site_1: EcoRI; Site_2:
/note="Vector: pBluescript sk(-); Site_1: EcoRI; Site_2:
/note="Vector: pBluescript sk(-); Site_1: EcoRI; Site_2:
/note="Vector: pBluescript sk(-); Site_1: EcoRI; Site_2:
/note="Vector: pBluescript sk(-); Site_1: EcoRI; Site_2:
/note="Vector: pBluescript sk(-); Site_1: EcoRI; Site_2:
/note="Vector: pBluescript sk(-); Site_1: EcoRI; Site_2:
/note="Vector: pBluescript sk(-); Site_1: EcoRI; Site_2:
/note="Vector: pBluescript sk(-); Site_1: EcoRI; Site_2:
/note="Vector: pBluescript sk(-); Site_1: EcoRI; Site_2:
/note="Vector: pBluescript sk(-); Site_1: EcoRI; Site_2:
/note="Vector: pBluescript sk(-); Site_1: EcoRI; Site_2:
/note="Vector: pBluescript sk(-); Site_1: EcoRI; Site_2:
/note="Vector: pBluescript sk(-); Site_1: EcoRI; Site_2:
/note="Vector: pBluescript sk(-); Site_1: EcoRI; Site_2:
/note="Vector: pBluescript sk(-); Site_1: EcoRI; Site_2:
/note="Vector: pBluescript sk(-); Site_1: EcoRI; Site_2:
/note="Vector: pBluescript sk(-); Site_1: EcoRI; Site_2:
/note="Vector: pBluescript sk(-); Site_1: EcoRI; Site_2:
/note="Vector: pBluescript sk(-); Site_1: EcoRI; Site_2:
/note="Vector: pBluescript sk(-); Site_1: EcoRI; Site_2:
/note="Vector: pBluescript sk(-); Site_1: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_2: EcoRI; Site_
                                                                            Contract: Nobin Buell
Contract: Robin Buell
The Institute for Genomic Research
9712 Medical Center Dr, Rockville, MD 20850, USA
Email: potato-array@tigr.org
This clone can be obtained from the University of Arizona Genomics
Institute. Orders can be made through URL:
http://genome.arizona.edu/orders/
Seq primer: M13F-R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      361 HisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              381 AlalysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAspIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPheSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TATTTGGCTCCAGAATATGCTTCCTCTGGAAAGCTTACAGACAAGTCAGACGTATTCTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyAlaLysArgLeuLeuValTyrGluPheValProAsnAsnAsnLeuGluLeuHisLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGGGCTCAGAGACTGCTTGTTTATGAGTTTGTTCAAACAATACTTTGGAATTTCATTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LysAlaSerAsnIleLeuIleAspPheLysPheGluAlaLysValAlaAspPheGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AlaLys1leAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGly
van der Hoeven, R., Bezzerides, J., Sun, H., Cho, J., Chiemingo, A. Bougri, O., Bud, C.R., Ronning, C., Tankeley, S. and Baker, B. Generations of ESTs from sprouting potato eyes Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                       organism="Solanum tuberosum"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-086-464-2 (1-647) x BG596561 (1-757)
                                                                                                                                                                                                                                                                                                                                                          /mol_type="mRNA"
/cultivar="Kennebec"
                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2.72e-25
1065.00
89.16%
80.32%
                                                                                                                                                                                                                                                                                                            1, .757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No.:
                                              TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Alignment
       AUTHORS
                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              07-MAR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Solanum tuberosum (potato)
Solanum tuberosum
Bukaryota, Virldiplantae, Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta, Magnoliophyta; eudicotyledons; core eudicots;
asterids; lamids; Solanales; Solanaceae; Solanum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                279
                                                                                                                                                                       299
                                                                                                                                                                                                                                                                  ValAlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGlu 319
                                                                                                                                                                                                                                                                                                                                                          ValGluIleIleSerArgValHisHisArgHisLeuValSerLeuValGlyTyrCysIle 339
                                                                                                                                                                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                                                                                                                                                                                                        AlaGlyAlaLysArgLeuLeuValTyrGluPheValProAsnAsnAsnLeuGluLeuHis 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LeuHisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGly 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlyTyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPhe 459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SerPheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAgpAlaAenAsn 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BG596561
EST495239 CSTS Solanum tuberosum CDNA clone CSTS15A23 5' sequence, marNA sequence.
BG596561
EG596561. GI:13614701
                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      781
                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LeuLeuGlyGlnGlyglyPheGlyTyrValHisLysGlyValLeuProSerGlyLysGlu
                                                                                                                                                                                                  CTTCTTGGCCAAGGTGGATTTGGATATGTGCACAAAGGAGTACTTCCAAAAGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LysSerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsn
                                                                                                    AAGAGCACTTTCACATATGAAGAATTGGCGATAGCTACAAATGGGTTTTCCGACTATAAT
                                                                                                                                                                                                                                                                                             GTTGAAATTATCAGTCGAGTGCATCATAGGCATTTGGTTTCTTTAGTTGGCTATTGCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCAGGAGATCATAGÁTTGCTTGTCTÁTGAATATGTTCCTAATAAAACCCTTGAGTTCCÁT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIGCATGGAAAAGATGITCCACCIATGGATTGGCCAACGCGGTTAAAATTGCTTTGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LeuAlaLysIleAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGGTATCTGGCACCAGAATATGCATCCTCTGGTAAACTAAGTGATAAATCAGATGTCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            480 ValTyrValAspAspSer-LeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        662 ACTIATACAGATGATAGITTTTGGTCGATTGGGCAAGACCATTGCTGCAGAAGGCTATGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         uGlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGl
                             US-10-086-464-2 (1-647) x CF436122 (1-785)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AATG 785
                                                                                                                                                                                                                                                                                                                                                                                                                                                        340
                                                                            260
                                                                                                                        N
                                                                                                                                                                       280
                                                                                                                                                                                                                     62
                                                                                                                                                                                                                                                                  300
                                                                                                                                                                                                                                                                                                                                                               320
                                                                                                                                                                                                                                                                                                                                                                                                           182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       519
                                                                                                                                                                                                                                                                                                                122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCUS
DEFINITION
```

g

원 상

8 6 8 6

8 8 8

g

g

ò

ò

셤

g

ò

ò

757 200 22 27 0

360

9

180

380

240

400 300 420 360 460

480

440 420

ACCESSION VERSION KEYWORDS SOURCE ORGANISM

REFERENCE

RESULT 7 BG596561

g

ઠે

중 음 승

a ઠે q ò

```
BG441204

BG441204

BG441204

BG0012C115f Gossypium arboreum 7-10 dpa fiber library Gossypium arboreum cDNA clone GA Ea0012C15f, mRNA sequence.

BG441204

BG441204.1

GI:13350856
                                                                                                                                                                 370
                                                                                                                                                                                                                       390
                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                              410
                                                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                                                                                             360
                                                                                                                                                                                                                                                                                                                                                                                        450
                                                                                                                                                                                                                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    550
                                                                                                           350
                                                                                                                                     120
                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                   430
                                                                                                                                                                                                                                                                                                                                                                                                                                           LysLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThr 470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         491 ArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAlaLys 510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gossýpium arboreum
Sukaryora, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Magnoliophyta, eudicotyledons, core eudicots,
rosids, eurosids II, Malvales, Malvaceae, Malvoideae, Gossypium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 (bases 1 to 692)
Wing,R.A., Frisch,D., Yu,Y., Main,D., Rambo,T., Simmons,J.,
Henry,D., Wood,T.C., Leslie,A. and Wilkins,T.A.
An integrated analysis of the genetics, development, and evolution
                                                                                 9
                                                     GGTCGTCGGCCAGTTGATACAAGTCAAACATATATGGATGACAGCTTGGTTGACTGGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTCCCCAACAACAACATTGGAATTCCACTTGCAAGGAAAAGGCCGACCAACAATGGAGTGG
                                                                                                                                                                                                                                                                                                                                   PheGlualaLysValalaAspPheGlyLeualaLysIleAlaSerAspThrAsnThrHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         351 ValProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          601 CTTGGGAAGGATTTCAATCCCAATGAGATGGCGAGAATGATTGCTTGTGCAGCTGCATGC
                                                                                                                                                                                                                                                                                                                                                                                       ValSerThrargValMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGly
 0
                           US-10-086-464-2 (1-647) x CB655196 (1-731)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gossypium arboreum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          :::|||||||
GACGTGTCT 729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AsnValSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 471
                                                        311
                                                                                7
                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                   411
                                                                                                                                                                                                                                                                                                                                                                                          431
                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                               451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BG441204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                      8
                                                                         ద
                                                                                                   8
                                                                                                                                셤
                                                                                                                                                                 8
                                                                                                                                                                                     셤
                                                                                                                                                                                                             ⋧
                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                      용
                                                                                                                                                                                                                                                                                                                                                                                ⋧
                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ਨੇ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                      CB655196
OSJNEC08F21.f OSJNEC Oryza sativa (japonica cultivar-group) cDNA clone OSJNEC08F21 5', mRNA sequence.
CB655196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Site 1: EcoRI; Site 2: Rice Blast (C9240-1)"
                                                                                                                                                                 540
                                                                                                                                                                                                                                                                                                                                                                                    Oryza sativa (japonica cultivar-group)
Oryza sativa (japonica cultivar-group)
Coryza sativa (japonica cultivar-group)
Eukaryota, Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Mapoliophyta; Liliopsida; Poales; Poaceae;
Ehrhartoideae; Oryzae, Oryza.

I (basea: 1 to 731)
Jantasuriyarat, C., Lu, G., Gowda, M., Hatfield, J., Zhou, B., Mazur, E., Kudrna, D., Dean, R., Soderlund, C., Wing, R. and Wang, G.
Large-scale identification of ESTs involved in the interaction Unpublished (2003)
Contact: Rod Wing
PheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnVal 480
              AlaArgMetValAlaCysAlaAlaAlaCysValArgHisSerAlaArgArgArgProArg
                                                                                                                                                                                        661 GCTCGCATGGTTGCTTGTTGCTGCTTGTGTCTTCTCACAAAGCGTAGACCACGA
                                                      TyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGluGln
                                                                     GlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Oryza sativa (japonica cultivar-group)"
/mol type="mRNA"
/mol type="mRNA"
/cultivar="Nipponbare"
/db xref="taxon:39947"
/clone="OSJNEC08F21"
/tissue_Type="Leaf"
/tissue_Type="Leaf"
/dev ztage="3 week"
/lab_host="DH108"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AZ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 University of Arizona
Biological Sciences West, 448A, P.O. Box 210088, Tucson,
85721-0088, USA
Tel: 520 628 3867
Fax: 520 621 9288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  731
199
23
21
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /clone lib="OSJNBC"
/note="Vector: pBluescript II KS +;
XhoI; 6 hrs after innoculation with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FORWARD: gta aaa cga cgg cca gtg
BACKWARD: gga aac agc tat gac cat g
Plate: 08 row: F column: 21
Seq primer: gta aaa cga cgg cca gtg.
Location/Qualifiers
                                                                                                                                                                                                                    Email: http://genome.arizona.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Arizona Genomics Institute
                                                                                                                                                                                                                                                                                                                                                             CB655196.1 GI:29658921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3.05e-25
1063.00
91.36%
81.89%
30.78%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1. .731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PCR PRimers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment Scores:
                                                      481
                                                                                                          501
                                                                                                                                                                                                                       541
                                                                                                                                                                                                                                                721
                           481
 461
                                                                                                                                     601
                                                                                                                                                                                                                                                                                                                                               ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pred. No.:
                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
COMMENT
                                                                                                                                                                                                                                                                           RESULT 8
CB655196
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score:
```

```
CUBJ9231 723 bp mRNA linear EST 10-JUL-2003
RFO2.114104F010529 RFO2 Brassica napus CDNA clone RFO2114104, mRNA
sequence.
                                                                                                                                                                                                                                                                                        Eukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta, Spermatophyta, Magnoliophyta, eudicotyledons, core eudicots, rosids, eurosids II, Brassicales, Brassicaceae, Brassica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      93, rue Henri Rochefort 91025 EVRY CEDEX France

169 47 54 00

Pax: 33 1 69 47 54 10

This sequence has been generated in the framework of the french

plant genomics programme 'Genoplante' (http://www.genoplante.com

and http://genoplante-info.infobiogen.fr).
                                                                                                                                                                                                                                                                                                                                                              Genoplante, a major partnership french program in plant genomics Unpublished (2003)
                                           2 AGCGGAAAGCTCACGGAGAAGTCTGACGTTTTCTCTCATTTGGCGTTGTGCTTTTGGAGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTCAACACGCACGTCTCCACCAGGGTGATGGGTACTTTCGGGTATTTAGCCCCTGAGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      449 SerGlyLysLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGluLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  489 TrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 723
199
0
0
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /mol type="mRNA"
/cultivar="samourai (restored line)"
/db xref="taxon:3708"
/clone="RF02114104"
/tissue type="anthers"
/clone_Ib="RF02"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       organism="Brassica napus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-086-464-2 (1-647) x CD839231 (1-723)
                                                                                                  GlubeuileThrGlyArgArg 473
                                                                                                                   CD839231.1 GI:32521171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3.37e-24
1030.00
100.00%
100.00%
29.83%
                                                                                                                                                                                                                                                                       Brassica napus (rape)
Brassica napus
                                                                                                                                                                                                                                                                                                                                                                                                  Contact: Genoplante
                                                                                                                                                                                                                                                                                                                                                          Genoplante.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                               Genoplante
                                                                                                                                                                                                                                CD839231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Scores:
                    551
                                                                                                     467
                                                                                                                                                                                                                                          VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pred. No.:
                                                                                                                                                                                                   DEFINITION
                                                                                                                                                          RESULT 10
CD839231
                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment
                                                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score:
                                                                                                                                                                                     LOCUS
                                                                  유
                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                    슝
                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HisHisArgHisBeuvalSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeu 346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CATCACAAACATCTCGTCTCATTGGTCGGATACTGTATTTCTGGGGACAATAAGAATGCTT 310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuHisGluAspCysAsnProLysllelleHisArgAsplleLysAlaSerAsnlleLeu 406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ValTyrGluPheValProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgPro 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySerAlaLysGlyLeuSerTyr 386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | IleAgpPheLygPheGluAlaLygValAlaAgpPheGlyLeuAlaLygIleAlaSerAsp 426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ThrAsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyr 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       70
                                                                                                                                                                     1. .692

1. .692

/organism="Gossypium arboreum"

/mol_type="mRNA"

/cultivar="8400"

/db_txref="taxon:29729"

/clone="GA" Ea0012C15f"

/tissue_type="Fibers isolated from bolls harvested 7-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /clone lib="Gossypium arboreum 7-10 dpa fiber library"
/note="Vector: pBK-CMV; Site_1: EcoRI; Site_2: XhoI"
                                                                                                                                                                                                                                                                                                                                                                                    692
1198
117
0
  of the cotton fiber
Unpublished (2000)
Contact: Wing RA
Clemson University Genomics Institute
Clemson University
100 Jordan Hall, Clemson, SC 29634, USA
Tel: 864 656 7288
Fax: 864 656 4293
Email: rwing@clemson.edu
Seq primer: TAATACGACTCACTATAGGG
High quality sequence stop: 690.
                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-086-464-2 (1-647) x BG441204 (1-692)
                                                                                                                                                                                                                                                                                                   /lab host="E. coli"
                                                                                                                                                                                                                                                                                                                                                                               9.38e-25
1047.00
94.71%
87.22%
30.32%
                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                       Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 427
                                                                                                                                                                            Bource
                                                                                                                                                                                                                                                                                                                                                                                     . No. :
                  JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                       Alignment
                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                  Score:
```

Q

8

ð 셤 ò g

g

ે

ò

q

g

ò

ò

g

g

ò

셤

ò

488

468

61

508

181

σ

602

482 552 542 592

629

612

776

646 836

631

```
BM358715

GA Ea012D16r Gossypium arboreum 7-10 dpa fiber library Gossypium arboreum 70-10 dpa fiber library Gossypium arboreum cDNA clone GA_Ea0012D16r, mRNA sequence.

BM358715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        i. Voaces T.C. or Yu,Y., Main,D., Rambo,T., Simmons,J.,
Henry,D., Wood,T.C., Leslie,A. and Wilkins,T.A.
integrated analysis of the genetics, development, and evolution
of the cotton fiber
Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                               Bukaryopa, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Magnoliophyta, eudicotyledons, core eudicots,
rosids, eurosids II, Malvales, Malvaceae, Malvoideae, Gossypium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /tissue_type="Fibers isolated from bolls harvested 7-10
                                    483 CATTCCGCACGTCGTCGGCCACGAATGAGTCAGGTCGTTCGGGCTCTGGAAGGCGACGTG
                                                                                                                                                                                                                                                                                                                613 TyrGlyLeuTyrProSerGlySerSerGluGlyGlnThrThrArgGluMet ---Glu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsn
                                                                                                                                                           HisSeralaArgArgArgProArgMetSerGlnIleValargAlaLeuGluGJyAsnVal
                                                                                                                                                                                                                                        SerieuSerAspieuAsnGluGlyMetArgProGlyGlnSerAsnValTyrSerSerTyr
                                                                                                                                                                                                                                                          593 MetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnProThrSerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          632 MetGlyLyslleLysArgThrGly------GlnGlyTyrSerGlyProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            rcegerecagreaaaaggreeracaggggracagcrccegaracaggggggggccrce
                                                                                         AsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAlaAlaCysValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1. 666
/organism="Gossypium arboreum"
/mol_type="mRNA"
/strain="AKA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Clemson University Genomics Institute
Clemson University
100 Jordan Hall, Clemson, SC 29634, USA
101 B64 656 7288
Fax: 864 656 4293
Email: rwing@clemson.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Total High Quality bases = 646
Seg primer: TAATACGACTCACTATAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /clone="GA_Ea0012D16r"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Seq primer: TAAYACGACLACACHING quality sequence stop: 666.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /cultivar="8400"
/db_xref="taxon:29729"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  dpa"
/lab host="E. coli"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BM358715.1 GI:18099461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (bases 1 to 666)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gossypium arboreum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gossypium arboreum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Contact: Wing RA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EST
                                                                                         513
                                                                                                                                                                                                                                        553
                                                                                                                                                                                                                                                                                                                                                     603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 13
BM358715
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                        d
                                                                             ò
                                                                                                                        원
                                                                                                                                                                                          g
                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                      Direct Submission
Submitted (25-APR-2002) Maize Mapping Project, University of
Missouri, Columbia, MO 65211, USA
If you are interested in getting corresponding physical clones,
these are publicly available from ZmDB and may be found by BLAST
searching at MSL, maizemap.org; ZmDB, www.zmdb.iastate.edu; TIGR,
www.idr.org; or NCBI, www.ncbi.nlm.nih.gov. When the source of the
maize cDNA sequences is either Virginia Walbot, Stanford or Pat
www.zmdb.iastate.edu.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ArgLeuLys11eAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCysAsn 392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ccaaagarcarccaccccacarraaggcarcraacarrcrrcrrcacrrcaaarrrgaa 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTATGGTTGCTGACTTGCAAAGTTCACTACTGATAACAACACCCATGTGTCA 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACAAGAGTAATGGGCACCTTTGGGTATTTGGCACCCGAGTATGCAGCATCTGGCAAGCTC 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ArgProvalAspAlaAsnValTyrValAspAspSerLeuValAspTrpAlaArgPro 492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Tracheophyta;
                                  Zea mays
Wararyota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Magnoliophyta, Liliopsida, Poales, Poaceae, PACCAD
clade, Panicoideae, Andropogoneae, Zea.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note-"this sequence is part of a project of EST assemblies resulting from the application of public contigs to seed DuPont contigs; this resource was assembled by DuPont as part of a collaboration for the overgo addressing of BACs in conjunction with the Maize
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3 AGATTAAAGATGGCTCTGGGTGCTGCCAAGGGTTTAGCTTATCTTCATGAAGACTGCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProLysllelleHisArgAsplleLysAlaSerAsnIleLeuIleAspPheLysPheGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThrAsnThrHisValSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ThrargvalmetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGlyLysLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            243 ACAGAAAATCCGATGTATTTTCTTTCGGAGTCATGCTTCTTGAGCTTATTACTGGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ThrGluLysSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThrGlyArg
                                                                                                                                                                   of
                                                                                                                        Hainey, C.F., Dolan, M., Miao, G.H., Vogel, J.M., Whitsitt, M.S., Arthur, L.W., Hanafey, M., Morgante, M. and Tingey, S.V. Maize Mapping Project/DuPont Consensus Sequences for Design Overgo Probes
Unpublished (2002)
2 (bases 1 to 1016)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'clone_lib="Maize Mapping Project/DuPont Cornsensus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1016
200
30
42
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Zea mays"
/mol_type="mRNA"
/db_xref="MaizeDB:637888"
/db_xref="taxon:4577"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-086-464-2 (1-647) x AY108243 (1-1016)
                                                                                                                                                                                                                                                                                                                                                                                                                                                cocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mapping Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6.53e-24
1025.00
82.14%
71.43%
29.68%
                                                                                                            (bases 1 to 1016)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1. .1016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                        Coe, E.H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
               SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .. No.:
                                                                                                                                                                                                                     REFERENCE
AUTHORS
TITLE
                                                                                                                              AUTHORS
                                                                                                          REFERENCE
                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                           JOURNAL
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                  COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
```

ò

be found

.. No..

267

ò g ઠે 유 287 131

ठे

요

ઠે

```
/organism="Saccharum officinarum"
/mol type="mRNA"
/db_xref="taxon:4547"
/clone="SCCCAM1004All"
/clone="SCCCAM1004All"
/clone="Drigan: Apical meristem and tissues surrounding of mature plants; Vector: pSport1; Site_1: Sal1; Site_2: Not1; An unidirectional CDNA library apenerated from [Apical meristem and tissues surrounding of mature plants; CDNA was prepared from polyA+ mRNA using Superscript Plasmid System Kit (Invitrogen). The double-strand cDNAs were fractionated in a sepharose CL-2B 40cm-columns and fragments sizing between 0.8 and 1:5 Kb were directionally cloned into the vector. Details of each source of RNA and library construction can be obtained at http://sucest.lad.ic.unicamp.br/public"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LeuvalSerLeuvalGlyTyrCysIleAlaGlyAlaLysArgLeuLeuvalTyrGluPhe 350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrp 370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            371 SerThrArgLeuLys1leAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAsp 390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CysAsnProLyg1leIleHisArgAspIleLysAlaSerAsnIleLeuIleAspPheLys 410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 311 GlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHisHisArgHis 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTTGTATCCTTGGTCGGCTATTGCATTTCTGGAGCCAACAGGTTGCTCGTCTACGAGTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysValGlySerGly
                Genet. Mol. Biol. 24 (1-4), 1-7 (2001)
Contact: Arruda P
Contact: Arruda P
Contact: Arruda P
Contact: Arruda P
Contact: Arruda P
Contact: Arruda P
Contact: Arruda P
Contact: Arruda P
Contact: Arruda P
Contact: Signature Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Contact Co
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                695
1195
116
116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps:
     The libraries that made SUCEST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JS-10-086-464-2 (1-647) x CA072174 (1-695)
                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1.13e-23
1013.00
91.85%
83.69%
29.34%
                                                                                                                                                                                                                                                                                                                                                                                             1. .695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                Bource
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pred. No.:
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        કે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SCCCAM1004A11.g AM1 Saccharum officinarum cDNA clone SCCCAM1004A11 5', mRNA sequence.
CA072174
CA072174.1 GI:34924325
CST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HisHisArgHisLeuValSerLeuValGlyTyrCyslleAlaGlyAlaLysArgLeuLeu 346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ValTyrGluPheValProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgPro 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySerAlaLysGlyLeuSerTyr 386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuHisGluAspCysAsnProLysIlelleHisArgAspIleLysAlaSerAsnIleLeu 406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  307 ValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgVal 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCATGGATTGGCCGACAAGGATGAAAATTGCTTTAGGATCTGCAAAAGGACTGGCATAT 430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Saccharum officinarum
Saccharum officinarum
Eukaryota, Viridiplantea, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Magnoliophyta, Liliopsida, Poales, Poaceae, PACCAD
clade, Panicoideae, Andropogoneae, Saccharum.
                                                                                                                                                                                                                                                                                                                                                                  247 LeuProProProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGlu 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPhe 286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyTyrValHisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLys 306
                                                                                                                                                                                                                                                                                                                                                                                                11 CTTCCGCCTCCGTCACCTGGTATTCCTTAGGTTTCTCAAAAGCACTTTTAGCTATGAA 70
/clone_lib="Gossypium arboreum 7-10 dpa fiber library"
/note="Vector: pBK-CMV; Site_l: EcoRI; Site_2: XhoI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTGGAAGTGGGCAAGGCGAGAGAATTTCAGGCTGAAGTTGAGATCATTAGCCGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11eAspPheLysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AlaAlaSerGlyLysLeuThrGluLysSerAspValPheSerPheGlyValVal 464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTTCAAGTGGAAAGCTCACTGATAAATCAGATGTTTTCTCCTTCGGGGTCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Vettore, A.L., da Silva, F.R., Kemper, E.L. and Arruda, P.
                                                                                                                               666
191
17
10
0
                                                                                                                            Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                               (1-666)
                                                                                                                                                                                                                                                                                                               US-10-086-464-2 (1-647) x BM358715
                                                                                                                               7.55e-24
1018.00
95.41%
87.61%
29.48%
                                                                                                                                                                       Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                         Alignment Scores:
```

251

a 8 6

347 311 367

191 327

요 요

371

431 407

g

387

491

දු පු

310

63

183

447

ઠે 용

g

8

VERSION KEYWORDS SOURCE ORGANISM

REFERENCE AUTHORS

DEFINITION

ACCESSION

CA072174 LOCUS

RESULT 14

243

303

ઠે g ò g δ g à

```
Search completed: April 25, 2004, 00:59:49 Job time : 3628 secs
                                                                                                                             Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         456
                                                                                                                                                                                                                                                         Query Match:
DB:
                                                                                                                                                        ..
No.:
                                                                                                                           Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ठे
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                          ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Triticum aestivum (bread wheat)

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi.

Exi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note=rvector: Lambda Uni-ZAP XR, excised phagemid, Site_1: EcoRI; Site_2: XhoI; Plants were grown under normal conditions, then drought stressed to 80%, 70% and 60% RWC at Texas Tech University (D. Zhang in HT Nguyen lab). Total RNA was prepared separately for roots collected at the three different drought conditions. Equal amounts of total RNA were pooled from all three samples, poly(A) RNA were purified, one cDNA library was made, and the cDNA clones were in vivo excised to give pBluescript SK(-) phagemids in the TJ Close lab at the University of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BU099573 172S Chinese Spring wheat drought stressed root cDNA library Triticum aestivum cDNA clone WHE3309_A09_A17, mRNA
                                                                                                450
                                                                                                                                                                                                      470
                                                                                                                                                                                                                                                         603
                                                                                                                                                                                                                                                                                                         GlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAla 490
                                                                                                                                                                                                                                                                                                                                                            604 GGGCGCCTCCT-----GGTAATTCAAGACAGGCAGATGACAACTTGGGTGACTGGGCA 657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGly
PheGluAlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThrAsnThrHis
                          TTTGAAGCTAAGGTGGCAGATTTTGGACTTGCAAAATTCACTTCTGATACAAACACCCCAT
                                                                                                                                   GTTTCAACCAGAGTAATGGGCACATTTGGGTACCTAGCACCTGAGTATGCTGCTTCTGGC
                                                                                                                                                                                                   LysLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThr
                                                                                                                                                                                                                                   AAGCTCACTGAGAAATCAGATGTCTTCTCTTTTGGAGTAATGCTTCTTGAGCTAATAACT
                                                                                                                                                                                                                                                                                                                                                                                                                  491 Arg-ProLeuLeuAsnArgAlaSerGluGlnGlyAsp 502
                                                                                                                                                                                                                                                                                                                                                                                                                                          organism="Triticum aestivum"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sequence.
BU099573
BU099573.1 GI:22547372
                                                424
                                                                                                431
                                                                                                                                                                                                                                                         544
                                                                                                                                                                                                                                                                                                         471
                                                                                                                                                   484
                                                                                                                                                                                                      451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 15
BU099573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
```

TITLE

COMMENT

FEATURES

```
550
                                                                                                                                                                                                                                                                                                                    315
                                                                                                                                                                                                                                                                                                                                                                                   335
                                                                                                                                                                                                                                                                                                                                                                                                                  190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlyTyrCysIleAlaGlyAlaLysArgLeuLeuValTyrGluPheValProAsnAsnAsn 355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLys 375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AspalaAsnAsnValTyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsn 495
California, Riverside (Fenton, Turuspekov). Plasmid DNA preparations and DNA sequencing were performed in the OD Anderson lab (all other authors)."
                                                                                                                                                                                                                                                                                   70
                                                                                                                                                                                                                                                   GGTTATTIGCATTTCTGAAGACAAGAGGTTGCTTGTCTATGAGTTTGTTCCCAATAACACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCAGATTTTGGACTTGCAAAGTTAACCTCTGATAATAACACTCCATGTTTCCACCAGAGTA
                                                                                                                                                                                                                                                                                                                                                   71 GATGGCACAGAÁGTTGCTGTGAAGCAATTAAGAGATGGAAGTGGGCAGGGAGAGGGTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     376 IlealaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaAlaSerGlyLygLeuThrGluLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  491 Aresecacarrineseraccriseaccasasaraccriserricrisecaascraacrisasaaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SerAspValPheSerPheGlyValValLeuLeuGluLeuIleThrGlyArgArgProVal
                                                                                                                                                                                                                                                                                                                    296 SerGlyLysGluValAlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGlu
                                                                                                                                                                                                                                                                                                                                                                                   PheGlnAlaGluValGluIleIleSerArgValHisHisArgHisLeuValSerLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 396 IleHisArgAspIleLysAlaSerAsnIleLeulleAspPheLysPheGluAlaLysVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  416 AlaAspPheGlyLeuAlaLysIleAlaSerAspThrAsnThrHisValSerThrArgVal
                                                                                                   715
184
25
0
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   508
                                                                                                 Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   496 ArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (1-715)
                                                                                                                                                                                                                      US-10-086-464-2 (1-647) x BU099573
                                                                                                   1.04e-22
983.00
89.70%
78.97%
28.47%
                                                                                                                                     Percent Similarity:
Best Local Similarity:
```

OM protein -

ë ë

Sequence:

ritle:

```
US-08-265-628-1

US-07-717-331F-9

US-09-228-986-1

US-09-228-986-1

US-09-228-986-1

US-09-228-986-1

US-09-228-986-1

US-09-228-986-1

US-09-228-986-3

US-08-447-185-3

US-09-228-986-3

US-09-228-986-3

US-09-228-986-1

US-09-228-986-1

US-09-28-986-1

US-09-28-986-1

US-09-249-585A-2

US-09-249-585A-2

US-09-249-585A-2

US-09-249-585A-2

US-09-249-585A-2

US-09-249-585A-2

US-09-249-585A-2

US-09-249-585A-2

US-09-249-585A-2

US-09-249-585A-2

US-09-249-585A-2

US-09-249-585A-2

US-09-249-585A-2

US-09-249-585A-2

US-09-249-585A-2

US-09-249-585A-2

US-09-259-081-2

US-09-130-114-1

US-09-130-14-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08-087-783A-15
US-08-194-088B-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PCT-US93-04648-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-103-840A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-07-884-811-15
US-07-885-971-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-08-194-087-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM: Eucalyptus grandis
2590
25114
25114
25116
25116
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
25136
2
  LENGTH: 3239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-228-986-9
44444444444
                                                                                                                                                                                                                                                                                                                                                                                  430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: DNA
    Command line parameter8:
-MODEL=frame+ p2n.model -DEV=xlp
-Q=/Cogn2_1/USPTO_spool_p/US10086464/runat_23042004_083016_5642/app_query.fasta_1.839
-Q=/Cogn2_1/USPTO_spool_p/US10086464/runat_23042004_083016_5642/app_query.fasta_1.839
-DB=16sued_Patents_NA -QFWT=fastap_-SUPFIX=rni_-MINMATCH=0.1_-LOOPCL=0
-LISTAFS_DIGN=100_TFM_FCORE=pc_TRR_MAR_=100_-TRM_RMIN=0.ALIGN=15
-MODELACAL_-OUTFWT=pco_-NOGM=ext_-HEAPSIZE=500_-MINLEN=0.AMXLEN=200000000
-USER=US10086464_@CGN_1_1_85_@runat_23042004_083016_5642_-NCPU=6_-ICPU=3
-NO_WMAP_-LARGEQUERY_-NGG_SCORES=0_-WAIT_-DSPBLOKE,=100_-LONGLOG_-CORES=0_-DWIT_-DSPBLOKE,=100_-LONGLOG_-CORES=0_-DWIT_-SCAPOP=10_-CAGAPORT=10_-YGAPDEXT=0.5_-FGAPOP=6_-DELEXT=7_-YGAPOP=10_-YGAPDEXT=0.5_-FGAPOP=6_-DELEXT=7_-
                                                                                                                                                             April 24, 2004, 20:30:41; Search time 133 Seconds (without alignments) 2699.648 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                               647
                                                                                                                                                                                                                                                           US-10-086-464-2
3453
1 MSSAPSPGTGSPPSPSNST.....REMEMGKIKRTGQGYSGPSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1: /cgn2 6/ptodata/2/ina/5A_COMB.seq:*
2: /cgn2_6/ptodata/2/ina/5B_COMB.seq:*
3: /cgn2_6/ptodata/2/ina/6A_COMB.seq:*
4: /cgn2_6/ptodata/2/ina/6B_COMB.seq:*
5: /cgn2_6/ptodata/2/ina/PCTUS_COMB.seq:*
6: /cgn2_6/ptodata/2/ina/PCTUS_COMB.seq:*
                           GenCore version 5.1.6
Copyright (c) 1993 - 2004 Compugen Ltd.
                                                                                                                      nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      682709 segs, 277475446 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                          Xgapop 10.0 , Xgapext
Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Issued Patents NA:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                         BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Minimum DB seq
Maximum DB seq
                                                                                                                                                                                                                                                                                    Perfect score:
                                                                                                                                                                                                                                                                                                                                                           Scoring table:
```

Appli Appli Appli Appli

Appli Appli Appli Appli Appli Appli Appli Appli Appli

Sequence Sequence Sequence Sequence Sequence

Sequence Sequence Sequence

Appl

Sequence 1, Ag Sequence 2, Ag Sequence 24, A Sequence 10, A Sequence 10, A Sequence 8, Ag

Sequence Sequence Sequence

Appli Appli Appli

Sequence 3, A Sequence 2, A Sequence 1, A Sequence 11, A Sequence 11, A Sequence 15, Sequence 15

Sequence 48, Sequence 2,

```
RESULT 1

US-028-986-9

Sequence 9, Application US/09228986

Sequence 9, Application US/09228986

Patent No. 6359198

GENERAL INFORMATION:

APPLICANT: Strabala, Timothy

APPLICANT: Strabala, Timothy

TITLE OF INVENTION: Compositions Isolated from Plant Cells

TITLE OF INVENTION: Compositions Isolated from Plant Cells

TITLE OF INVENTION: Compositions Isolated from Plant Cells

TITLE OF INVENTION: Compositions Isolated from Plant Cells

TITLE OF INVENTION: 1000/1020

CURRENT APPLICATION NUMBER: US/09/228,986

CURRENT FILING DATE: 1999-01-12

NUMBER OF SEQ ID NOS: 130

SOFTWARE: FastSEQ for Windows Version 3.0

SEQ ID NO 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProProAlaProVal-ThrProProThrArgAsnProProProSerValProGlyProPr 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          oSerAsnProSerArgGluGlyGlySerProArgProProSerSerProSerProProSe 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-086-464-2 (1-647) x US-09-228-986-9 (1-3239)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1.88e-23
756.00
51.93%
34.99%
21.89%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
```

Appli Appli Appli Appli Appli

Sequence Sequence Sequence

Description

DB

Length

Query

Result

Database :

Sequence Sequence Appli Appli Appli Appli Appli Appli

Sequence Sequence Sequence Sequence

US-09-228-986-9 US-09-602-472A-1 US-09-228-986-4 US-09-228-986-13 US-09-228-986-7 US-09-228-986-7 US-09-602-472A-3 US-08-881-706-11 US-09-579-1182-3 US-09-288-986-11 US-09-288-986-11 US-09-287-889-1 US-09-587-889-1 US-09-616-434-1093

3233 1593 2868 1488 2513 2432 1559 4104 11224 3097 3590

744.5 740.7 712.703.5 67.8 667.5 604.5 602.5 803.5

1093, Ap

Sequence Sequence Sequence

m

```
588 LysLysPheArgLysMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7.71e-23
740.00
50.91%
36.92%
21.43%
                                                                                                                                                                                                                                                                                                                                                                                            ; TYPE: DNA
; ORGANISM: Pinus radiata
US-09-228-986-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 267
                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1096 CTTGCGAACCACACCTATGATCCCAATGCGGCCTCTGGTCAAAGCAACCGGTACAACAAC 1155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1156 GGTGAGAACCAGTAGAATTTCAAAGAATGAAGAAGGTGGTGGGTCGGGTCGTAGCAGG 1215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlualaiysValalaaspPheGlyLeualaiysIleala---SeraspThrAsnThrHis 430
                  294
                                                                                                                                     384
                                                                                                                                                                                                                   444
                                                                                                                                                                                                                                                    LeuvalGlyTyrCysIleAlaGlyAlaLysArgLeuLeuvalTyrGluPhevalProAsn 353
|||:::||||||||||
TTAATCGGATACTGTGCTGATGGTGACCAAAGACTTCTTGTTTATGAATTCATGCCATTG 504
                                                                                                                                                                                                                                                                                                                                                                                                                  ThrArgLeuLys1leAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCys 391
                                                                                                                                                                                                                                                                                                                                                                                                                                                         624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGly 450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAla 490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAlaLys 510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAlaAlaAlaCys 530
                                                                                                                                                                                                                                                                                                                                    354 AsnAsnLeuGluLeuHisLeuHisGly-----GluGlyArgProThrMetGluTrpSer 371
                                                                                                                                                                                                                                                                                                                                                                         505 GGATCGTTAGAAGATCATCTTCATGATCTCCCACCAGAAAAAGAAGCGTTAGATTGGAAC 564
                                                                                            Pro---SerGlyLysGluValAlaValLysGlnLeuLysValGlySerGlyGlnGlyGlu
                                                                                                                                                                            ArgGluPheGlnAlaGluValGluIleIleSerArgValHisHisArgHisLeuValSer
                                                                                                                                                                                                 ACAAGAATGAAGATAGCGGCTGGTGCAGCTCGAGGTTTGGAATTTCTTCACGATAAGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LysteuThrGluLysSerAspValPheSerPheGlyValValLeuGluLeuGluLeuIleThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrValHisLysGlyValLeu
                                         |||||||||
TTTAGCCCTGATTGTTTGCTAGGAGAAGAAGAGTTTGGCCATGTGTATAGAGACGCTT
                                                                                                                                   ccideccalcicicacarricracitical calification and consecue contractions contractions and contractions are contracted as a contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contract
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AsnProLysIleIleHisArgAspIleLysAlaSerAsnIleLeuIleAspPheLysPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   925 CGACCCTTATTCAAC-----GACAGAAGGAAATTTGCAACATTGGCAGACCCCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      531 ValArgHisSerAlaArgArgArgProArgMetSerGlnIleValArgAlaLeu----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ---GluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   --- TGGGGGGATCTAGAAGGTTCCGACAAAGGAGATTCGCCTCGAGAAACTCAAACTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----TyrAsnGluAspMet-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              568 ValTyrSerSerTyrGlyGlySerThrAspTyrAspSerSerGln------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             745 /
                                                                                                                                                                                                                                                                                                                                                                                                                                                       565
                                                       265
                                                                                                                                   325
                                                                                                                                                                            314
                                                                                                                                                                                                                                                                                             445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   685
                  275
                                                                                              295
                                                                                                                                                                                                                 385
                                                                                                                                                                                                                                                        334
                                                                                                                                                                                                                                                                                                                                                                                                                372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  471
                                                     吕
                                                                                            8
                                                                                                                       엄
                                                                                                                                                              ઠે
                                                                                                                                                                                                       요
                                                                                                                                                                                                                                        8 6
                                                                                                                                                                                                                                                                                                                                6 6 6 6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6 6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8 6 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6 6 6 6 6 6 6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
```

```
RESULT 3
US-09-228-986-4
; Sequence 4, Application US/09228986
; Sequence 4, Application US/09228986
; Remember 6 4, Application US/09228986
; GENERAL INFORMATION:
; APPLICANT: Strabala, Timothy
; APPLICANT: Nieuwenhuizen, Niel8
; TITLE OF INVENTION: Compositions Isolated from Plant Cells
; TITLE OF INVENTION: and Their Use in the Modification of Plant Cell Signalling
; FILE REPRENCE: 11000/1020
; CURRENT APPLICATION NUMBER: US/09/228,986
; CURRENT FILING DATE: 1999-01-12
; NUMBER OF SEQ ID NOS: 130
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 4
; LENGTH: 2868
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----TTCTTGATGTACCTGCT 1076
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         990 GCTGCCCTCTTATTT----- 1004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        167 AspGluGluAspAlaTyrTyrValProProProProProProGlyProLysAlaGlyGly 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          147 ValAlaLeuLeuValIleValThrLeuIleCysLeuLeuCysLysLysLysArgArgArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -GCAGCTCCTGCAATTGGGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      187 ProTyrGlyGlyGlnGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAspHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   207 ValValThrSerLeuProProProProLysAlaProSerProProArgGlnProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   227 ProProProProPheMetSerSerSerGlyGlySerAspTyrSerAspArgProVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----SerAsnProSerArgGluGlyGlySerProArgProProSerSerProSerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LeuProProProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProSerProSerSerAspGlyLeuSerThrGlyValValValGlyIleAlaIleGlyGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              90 ProAlaProValThrProProThrArgAsnProProProSerValProGlyProPro
                           :::||| |||::: ||| ||||1333 GAAAAAGACGAGACAAGCAGCTTTGATGGGAATGCTAACGGT 1383
604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCTGGAAGCAATGGAGCAAGGGTGCAGAGCTCTTCC------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2868
182
69
133
109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-086-464-2 (1-647) x US-09-228-986-4 (1-2868)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
```

```
셤
                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                     Ωp
                                                                                                                                                                                                                                                                                                                                      $ B
                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                     Ωp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            업
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                    à
                                                                                                                                                                                        Š
                                                                                                                                                                                                      ద
                                                                                                                                                                                                                      ∂
                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                   ठे
                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                       1487
                                                                                                                                                                                                           1547
                                                                                                                                                                                                                                                                                                                                                                1787
                                                                                            1367
                                                                                                                           |||||||||
CTTGTTTATCCCTACATGGCCAATGGAAGTGTTGCTTCATGCCTACGAGAGGGGCACAA 1427
                                                                                                                                                                                                                                                                              ATGGATTATAAGGACACACATGTTACGACGCTGTTCGTGGAACCATTGGCCACATAGGA 1667
                                                                                                                                                                                                                                                                                                                  TCTGAAGTGGTAAGGATGTTGGAAGGGGATGGCTTAGCTGAGAGATGGGAGAATGGCAA 2015
                                                                                                                                                                                                                                                                    443
                                                                                                                                                                                                                                                                                                         463
                                                                                                                                                                                                                                                                                                                                            483
                                                                                                                                                                                                                                                                                                                                                                                   501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  561
                                                                                                                LeuValTyrGluPheValProAsnAsnAsnAsnLeuGlu-----LeuHisLeuHisGlyGlu 363
                                                                                                                                                                                         403
                                                                                                                                                                                                                               423
                                                                                                                                                                                       GAAGAGCGTACACCGGGTGGAGGTTGCAGTTTCAAACAGAAGTGGAGATGATAAACACATG
          GlyArgProThrMetGluTrpSerThrArgLeuLyslleAlaLeuGlySerAlaLysGly
                                                                                                                                                               AsnileLeuileAspPheLysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIle
                                                                                                                                                                                                                                         AGGCTTGATATGCTAGTTGATCCTGATCTTAAGAACAATTATGTTGAAGCAGAGGTGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SerGlnileValArgAlaLeuGluGlyAsn-ValSerLeuSerAspLeuAsnGluGlyMe
GlyTyrValHisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLys
                                     ---ValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArg
                                                                          ValHisHisArgHisLeuValSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeu
                                                                                                                                                                                                                                                                   424 AlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAla
                                                                                                                                                                                                                                                                                                         ProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPheSerPheGlyVal
                                                                                                                                                                                                                                                                                                                                            ValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnAslTyrValAsp
                                                                                                                                                                                                                                                                                                                                                                                   AspSer-----LeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGly
                                                                                                                                                                                                                                                                                                                                                                                                                        AspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMetAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ArgMetValAlaCysAlaAlaCysValArgHisSerAlaArgArgProArgMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 4, Application US/09579182
Patent No. 6500628
GENERAL INFORMATION:
PAPLICANT: Robison, Keith E.
TITLE OF INVENTION: NUCLEIC ACID MOLECULES ENCODING HUMAN KINASE AND TITLE OF INVENTION: PHOSPHATASE HOMOLOGUES AND USES THEREFOR FILE REFERENCE: MNI-1.61
CURRENT APPLICATION NUMBER: US/09/579,182
CURRENT FILING DATE: 2000-05-25
NUMBER OF SEQ ID NOS: 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----TGGAAGTCGTACGGA 2034
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tArgProGlyGlnSerAsnValTyrSerSerTyrGly 573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2016 AAGG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 4
US-09-579-182-4
                                                        1248
                                                                                             1308
                                                                                                                                                     364
                                                                                                                                                                                                                                                                                       1608
                                                                                                                                                                                                                                                                                                                           1668
                                                                                                                                                                                                                                                                                                                                                                1728
                  1188
                                                                          326
                                                                                                                                  1368
                                                                                                                                                                       1428
                                                                                                                                                                                                           1488
                                                                                                                                                                                                                               404
                                                                                                                                                                                                                                                  1548
                                                                                                                                                                                                                                                                                                          444
                                                                                                                                                                                                                                                                                                                                                                                                      1788
                                                                                                                                                                                                                                                                                                                                                                                                                         502
                                                                                                                                                                                                                                                                                                                                                                                                                                                               522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        561
                                     307
                                                                                                                346
                                                                                                                                                                                          384
                                                                                                                                                                                                                                                                                                                                              464
                                                                                                                                                                                                                                                                                                                                                                                    484
                                                                                                                                                                8 8 8 8
                                                                                                                                                                                                                                           8 8 8
                                                                                                                                                                                                                                                                                                   8 6 8 6
                                                                                                                                                                                                                                                                                                                                                                              රු පි
                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   요
              g
                                   ð
                                                 8 6 8
                                                                                                             8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                  ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
```

```
318
                                                                                                                                                                                                                                                                                                                                    279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    455
                                                                                                                                                                                                                                                                                                                                                          207
                                                                                                                                                                                                                                                                                                                                                                                                      267
                                                                                                                                                                                                                                                                                                                                                                                                                                                   327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     339 IleAlaGlyAlaLysArgLeuLeuValTyrGluPheValProAsnAsnLeuGluLeu 358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              220 ProProArgGlnProProProProProProProPheMetSerSerSerGlyGlySer 239
                                                                                                                                                                                                                    81
                                                                                                                                                                                                                                                                                                                                   LysSerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsn
                                                                                                                                                                                                                                                                                                                                                 AlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SerAspValPheSerPheGlyValValLeuLeuGluLeuIleThrGlyArgArgProVal
                                                                                                                                                                                                ---ProProLysAlaProSer
                                                                                                                                                                                                            240 AspTyrSerAspArgProValLeuFroProProSerProGlyLeuValLeuGlyPheSer
                                                                                                                                                                                                                                                                                                            -----GAACAGAAGGAGCTAACTGCTCCAAAAGAAGGGCCTACTGCGATATTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                             GluValAlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATAGTAGCTGTTAAACAGCTTGAACGGTCTACAAGGAAACAGAGAGTTTCTTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GluValGluIleIleSerArgValHisHisArgHisLeuValSerLeuValGlyTyrCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HisLeuHisGly-----GluGlyArgProThrMetGluTrpSerThrArgLeuLysIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HisArgAspIleLysAlaSerAsnIleLeuIleAspPheLysPheGluAlaLysValAla
                                                                                          1488
178
73
160
62
                                                                                          Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                         US-10-086-464-2 (1-647) x US-09-579-182-4 (1-1488)
                                                                                                                                                                                                                                                          |||:::
|-----CGACGAGGTCCT------
                                                                                                                                                                                                205 AspHisValValThrSerLeuProPro----
                                                                                          6.04e-22
712.00
53.07%
37.63%
 7.0
                                               sapiens
                                                                                                                 Percent Similarity:
Best Local Similarity:
Query Match:
DB:
  PatentIn
                                            ; ORGANISM: Homo
US-09-579-182-4
SOFTWARE: Pate
SEQ ID NO 4
LENGTH: 1488
TYPE: DNA
                                                                                Alignment Scores:
Pred. No.:
Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                     268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   268
                                                                                                                                                                                                                                                                 82
                                                                                                                                                                                                                                                                                                                                                           148
                                                                                                                                                                                                                                                                                                                                                                                  280
                                                                                                                                                                                                                                                                                                                                                                                                       208
                                                                                                                                                                                                                                                                                                                                                                                                                              599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   456
                                                                                                                                                                                                                                                                                                               94
```

```
||||||||||||||::
| CTTGTGTATGATATTTCGACAATGGATCACTCTATGACGTATTGCACATGGCAGATGAG 1559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----GAAGAAAACTA 1043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuIleCysLeuLeuCysLysLysArgArgArgAspGluGluAspAlaTyrTyrVal 174
                                                                                                                                                                                                                                                                                                                   TrpArgGlnGlnAsnAlaThrPro----ProSerAspHisValValThrSerLeuPro 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          288 TyrValHisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysVal 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LeuValTyrGluPheValProAsnAsnAsnLeu-----GluLeuHisLeuHisGlyGlu 363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySerAlaLysGly 383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         404 ABNIleLeulleAspPheLysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIle 423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        424 AlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAla 443
                                                                                                 TCAAATGTGGTCCCTTCATCAGGTGGCTCAAAGGGTGGGAACAGCAATAAGAAATCTCTG
                                                                                                                                  SerThrGlyValValValGlyIleAlaIleGlyGlyValAlaLeuLeuValIleValThr
                                                                                                                                                                                                                ProProProProProGlyProLysAlaGlyGlyProTyrGlyGlyGlnGlnGlnGln
                                                                                                                                                                                                                                                                                                                                                                                                  ValProGlyProProSerAsnProSerArgGluGlyGlySerProArgProProSerSer
                                                                                                                                                                                                                                                                                                                                               1044 AGCAATCGTGTGTCTTTCACCCCCTATCTCCCCTCGATGCTGAATTATTGAAAGAGAGT
                                                                                                                                                                                                                                                                                                                                                                               ProProProLysAlaProSerProProArgGlnProProProProProProProPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                         233 MetSerSerSerGly------GlySerAspTyrSerAspArgProValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCAACAAGTCTACAGGGACAAAGGCTTCGGAAGTATTTTTCAAGTAAGAGGACTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProProProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAspIleLysAlaSer
                                                                          124 ProSer-----ProProSerProSerSerAspGly--------------------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gly-----SerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ValHisHisArgHisLeuValSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1500
                                                                                                                                    135
                                                                                                                                                                                                155
                                                                                                                                                                                                                                                                                                                                                                                213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    384
                                                                                                                                                          셤
                                    유
                                                                        ò
                                                                                              g
                                                                                                                         ठे
                                                                                                                                                                                           ò
                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                             음 중 음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8 6 6 6
                                                                                                                                                                                                                                                                                                                                                                          8 8
                                                                                                                                                                                                                                                                                                                                                                                                                              ∂
                                                                                                                                                                                                                                                                                                                                                                                                                                                              8 8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8 6 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18-09-228-986-13
Sequence 13, Application US/09228986
Sequence 13, Application US/09228986
Sequence 13, Application US/09228986
Sequence 13, Application US/09228986
GENERAL INFORMATION:
APPLICANT: Strabala, Timothy
APPLICANT: Nieuwenhuizen, Niels
TITLE OF INVENTION: Compositions Isolated from Plant Cells
TITLE OF INVENTION: and Their Use in the Modification of Plant Cell Signalling
FILE REFERENCE: 11000/1020
CURRENT APPLICATION UNBER: US/09/228,986
CURRENT FILING DATE: 1999-01-12
NUMBER OF SEQ ID NOS: 130
SOFTWARE: FastSEQ for Windows Version 3.0
                                                                                                                                                                                                979 GCGACAAGACCACTGATTGGCGACGTGACAGCTCTAACATACTTAGCTTCGCAAACG 1038
                                                                                                                                                                                                                                                                       1039 TTTGACCCAAACGCACCAAGCGGTCAAAACAGTAGAAGTGGGAGTGGGCCACCATTTATC 1098
                                                                                                                                                                                                                                                                                                                                                                                    1219 GATATG---GTGAGGGAAGTCAATGCAGGATCAGAAGGTGGGAGCGAGACAGGAGGCGGG 1275
                                                                                                                                                                                                                                                                                                                                   1099 AGAACAAGGGATGATCGGAGGAGCTTGGGAGATGGGAGTAGCTTGGATAGTCCTGCAGAG 1158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1276 TCAGGTAGAAAATGGGGATTA------AGCGATTTGGAAGGGCAAGAATCACAG 1323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----AspTyrGlyLeuTyrProSerGlySerSerSerGluGlyGlnThrThrArg 628
                                                                                                                                                                                                                                                                                                                                                                                                                         AlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnProThrSer---- 611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Thr Thr ProGlySer ProProAla ProVal Thr ProProThr ArgAsn ProProProSer 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ----- 833
                    AspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsn
                                                        ArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyr
                                                                           516 AspArgGluGluMetAlaArgMetValAlaCysAlaAlaAlaCysValArgHisSerAla
                                                                                                                                                                              536 ArgArgArgProArgMetSerGlnIleValArgAlaLeuGluGlyAsnValSerLeuSer
                                                                                                                                                                                                                                          556 ---AspleuAsn-----GluGlyMetArgProGlyGlnSerAsnValTyr---
                                                                                                                                                                                                                                                                                                     ------SerSerTyrGlyGlySerThrAspTyrAsp------
                                                                                                                                                                                                                                                                                                                                                                 ---SerSerGlnTyrAsnGluAspMetLysLysPheArgLysMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1324 AGAGGGAGCCCGGCGAGTGTTGGGAGATCATCGAGAGGC 1362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2513
178
81
179
85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   195 Acricerccrecrecrececeaceararacrecacer----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluMetGluMetGlyLysIleLysArgThrGlyGlnGly 641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          x US-09-228-986-13 (1-2513)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.21e-21
703.50
49.52$
34.03$
20.37$
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         radiata
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rercent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-086-464-2 (1-647)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: DNA
ORGANISM: Pinus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH: 2513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; ORGANISM: Pi:
US-09-228-986-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQ ID NO 13
                            808
                                                          496
                                                                                                                                                  919
                                                                                                                                                                                                                                                                                                     570
                                                                                                                                                                                                                                                                                                                                                                                                                           594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       612
                      셤
                                                          8 8 8
                                                                                                                                          සි දි
                                                                                                                                                                                                   g
                                                                                                                                                                                                                              දු ද
                                                                                                                                                                                                                                                                                                  8 6
                                                                                                                                                                                                                                                                                                                                                             6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                               요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
```

1319

1259

```
2039 TCT 2041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ser 581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 7
US-09-602-472A-3
                                                                                                                                                                                                                   411
                                                                                                                                                                                                                                                                                                                                             471
                              1223
         313
                                                 333
                                                                                           353
                                                                                                                                                                           391
                                                                                                                                                                                                                                                                                1583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   581
                                                                                                                                                QQ
                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                          d
                                                                                                                                                                                                                                                                                                                   a y
                                                                                                                                                                                                                                                                                                                                                             D
D
                                                                                                                                                                                                                                                                                                                                                                                                      ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                 엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                       셤
                                         à
                                                                  요
                                                                                  à
                                                                                                        g
                                                                                                                            ð
                                                                                                                                                                    ठ
                                                                                                                                                                                                                 8 8 8
                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:

GENERAL INFORMATION:

APPLICANT: Strabala, Timothy

APPLICANT: Strabala, Timothy

APPLICANT: Nieuwenhuizzen, Nieuse

TITLE OF INVENTION: Compositions Isolated from Plant Cells

TITLE OF INVENTION: and Their Use in the Modification of Plant Cell Signalling

TITLE OF INVENTION: and Their Use in the Modification of Plant Cell Signalling

TITLE OF INVENTION: 1100/1020

CURRENT APPLICATION NUMBER: US/09/228,986

CURRENT FILING DATE: 1999-01-12

NUMBER OF SEQ ID NOS: 130

SOFTWARE: FastSEQ for Windows Version 3.0

SEQ ID NO 7
                                                                                                                                             2015
                                                                                                                                                                                                         1162
                                                                                                                                                                              -----ACTGCAĠĠĊCACĠĂĊCT 2168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                483
                                                                                                     -----GATATT 1955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    312
                                                                                                                                                                 AlaArgMetValAlaCysAlaAlaAlaCysValArgHisSerAlaArgArgArgProArg 540
                                                                                                                                                                                                                                                  MetArgProGlyGlnSerAsnValTyrSerSerTyrGlyGlySerThrAspTyrAspSer 580
             valLeuleuGluLeulleThrGlyArgArgProValAspAlaAsnAsnValTyrValAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPheSerPheGlyVal
                                                   484 AspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPhe
                                                                                                                        GluGlyLeuAla-----AspAlaLysMetAsnAsnGlyTyrAspArgGluGluMet
                                                                                                                                             GATGCATTGGCAAAGATGGTTGATCCAGCTTTGAAGGGAAGTTATCCTGCAAAATCTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuValLeuGlyPheSerLysSerThrPheThrTyrGluGluLeuAlaArgAlaThrAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrValHisLysGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuProSerGlyLysGluValAlaValLysGlnLeuLysValGlySer---GlyGlnGly
                                                                                             .914 CAGTCATTAGTAAGATGGGCCACCCCTCAGCTTCAT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2432
147
68
104
22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-086-464-2 (1-647) x US-09-228-986-7 (1-2432)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps:
                                                                                                                                                                                                                                                                                                                                                       Sequence 7, Application US/09228986 Patent No. 6359198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2.44e-20
678.00
63.05%
43.11%
19.64%
                                                                                                                                                                                                                                                                      ATGACAGGAGATGAA
                                                                                                                                                                                                                                                                                                       ::: |||
2169 GCAGATTAT 2177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: DNA ORGANISM: Pinus radiata
                                                                                                                                                                                                                                                                                           581 SerGlnTyr 583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2432
                                                                                                                                                                                                                                                                                                                                   RESULT 6
US-09-228-986-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-228-986-7
                   1794
                                                                                                                                                                                                                                                                        2136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1046
                                        464
                                                           1854
                                                                                                                         504
                                                                                                                                             1956
                                                                                                                                                                 521
                                                                                                                                                                                                           541
                                                                                                                                                                                                                             2076
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1163
 444
                                                                                                                                                                                                                                                   561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LENGTH:
                                                                                                                                       8 8 8
                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                ò
                                                     8 8
                                                                                              g
                                                                                                               ठे
                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
```

```
1402
                                                                                                                                                                                                                                                        1642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2038
                                                                                                           1801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1921
                                                                                                                                                                                                                                                                                                                                             410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1703 égacaaadégectitadarititgeccagectécaaagcaaaagtiéra-----atg 1753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        266
                          1523 TTTGAAGCTGTTGTTGGAGATTTTGGGTTAGCAAAGCTCTTGGATCACAGGGATTCTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GluArgGluPheGluAlaGluValGluIleIleSerArgValHisHisArgHisLeuVal
                                                                                                                                                                                                                                                                                                                                             CysAsnProLysIlelleHisArgAspIleLysAlaSerAsnIleLeuIleAspPheLys
                                                                                                                                                                                                                                                                                                                                                                      1463 TGTGATCCCCAAGATTATTCACCGGGATGTGAAAGCAGCAAATATATTATTACTGGATGAATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyArgArgProValAsp-----AlaAsnAsnValTyrValAspAspSerLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  507 AlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1862 TCTTTGCTATGCACCCAATTTCAGCCTGGACATCGTCCAAAATGTGTGATGTTTTGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          547 AlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----SerTyrGlyGlySerThrAspTyrAspSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuValTyrGluPheValPro
                                                                                                                                                                       AsnAsnAsnLeuGlu-----LeuHisLeuHisGlyGluGlyArgProThrMetGluTrp
                                                                                                                                                                                                                                                                                                                                                                                                                                PheGluAlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThrAsnThrHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   431 ValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          451 LysLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                487 ValAspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       527 AlaAlaAlaCysValArgHisSerAlaArgArgArgProArgMetSerGlnIleValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Genea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 3. Application US/09602472A; Patent No. 6608240; Patent No. 6608240; GENERAL INFORMATION: APPLICANT: Bidney Dennis L.; APPLICANT: Hu, Xu; APPLICANT: Hi, Xu; APPLICANT: Li, Guihua; TITLE OF INVENTION: Sunflower Disease Resistance Gen; FILE REFERENCE: 35718/200630; CURRENT APPLICATION NUMBER: US/09/602,472A; CURRENT FILING DATE: 2000-06-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               567 AsnValTyrSer------
```

511

491

471

567

```
2350 ccaccederrerreaacaarccreerere---rereinarcrerreceerer 2406
                                                                                                                                                                                                                                    531 lArgHisSerAlaArgArgArgProArgMetSerGlnIleValArgAlaLeuGluGlyAs 551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ----AATGCAGACGGTTATGCTCATCACAGAGATCTCATGGA 2454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProPro-----SerAsnProSerArgGluGlyGlySerProArgProProSer 122
                                                                                                                                                                                                                                                                                                                                                       567 nValTyrSerSerTyrGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAsp 586
                                                                                            551 nValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSer-----Aș
  309 TTCCACACGGGTGATGGGTACATACGGTTACTGTGCTCCTGAGTATGCCATGACTGGTCA
                                                                                                                                                                                511 tAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAjaCysAjaAlaAlaCysVa
                                                    869 GTTAACGGTCAAATCCGATGTGTACAGCTTTTGGTGTCGTCTTTTTAGAGCTTATTACCGG
                                                                             471 yArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAlaAr
                                                                                                                              491 gProleuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAlaLysMe
                          4104
161
84
148
127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          123 SerProSerProSerProSerSerAspGlyLeu----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-086-464-2 (1-647) x US-08-881-706-1 (1-4104)
                                                                                                                                                                                                                                                                                                                                                                                                US-001.9 (1981-706-1)
Sequence 1, Application US/08881706
Patent No. 6245969
GENERAL INFORMATION:
APPLICANT: Chong, Joane
APPLICANT: Li, Jianming
TITLE OF INVENTION: Receptor Kinase BIN1
FILE REFERENCE: 07251/022001
CURRENT APPLICATION NUMBER: US/08/881,706
CURRENT FILING DATE: 1997-06-24
NUMBER OF SEQ ID NOS: 2
SOFTWARE: PatentIn Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .4e-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 604.50
47.21%
31.02%
17.51%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2407 GATCCTTCA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: DNA
ORGANISM: Arabidopsis sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; NAME/KEY: CDS
; LOCATION: (97)..(3687)
US-08-881-706-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 4104
                            451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score:
                                                                                                                                                      용
                                                                                                                                                                                                        요
                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                          δ
                                                 g
                                                                             8
                                                                                                 ద
                                                                                                                              ò
                                                                                                                                                                                ò
                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                     ઠ
                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                SerProProArgGlnProProProProProProProProPheMetSerSerGlyGly 238
                                                                                                                                                                                                                                                                                                                                                                  276 SerGluAlaAgnLeuLeuGlyGlyGlyPheGlyTyrValHisLysGlyValLeu--- 294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       333 CAGCCTGATTGCTTCTTAAGGGAGGGTGGTTTTGGTTGTGTATATAGGACGTCTTCAG 392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         295 ProSerGlybysGluValAlaValLysGlnLeubysValGlySerGlyGlnGlyGluArg 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GluPheGlnAlaGluValGluIleIleSerArgValHisHisArgHisLeuValSerLeu 334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AsnLeuGluLeuHisLeuHisGly-----GluGlyArgProThrMetGluTrpSerThr 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              373 -ArgleulysileAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCysAs 392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 nProLysilelleHisArgAspileLysAlaSerAsnileLeuileAspPheLysPheG 412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    335 ValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuValTyrGluPheValProAgnAsn 354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     uAlaLysValAlaAspPheGlyLeuAlaLysIleAla---SerAspThrAsnThrHisVa 431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |SerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGlyLy 451
                                                                                                                                                                                                                                                                                                                                                 SerAspTyrSerAspArgProValLeuProProProSerProGlyLeuVal-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuGlyPheSerLysSerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           131 rcaccaaaagrcggccargaagrccacccar-ccgcccrr---
                                                                                                                                                                                1559
165
65
117
57
                                                                                                                                                                              Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                        US-10-086-464-2 (1-647) x US-09-602-472A-3 (1-1559)
PRIOR APPLICATION NUMBER: 60/140,876
PRIOR FILING DATE: 1999-06-24
NUMBER OF SEQ ID NOS: 64
SOFTWARE: FastSEQ for Windows Version
SEQ ID NO 3
                                                                                                                                                                              4.39e-20
667.50
57.50%
41.25%
                                                                                        ORGANISM: Helianthus annuus
                                                                                                                             (1319)
                                                                                                                                                                                                        Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                ; NAME/KEY: CDS
; LOCATION: (81)
US-09-602-472A-3
                                                                                                                                                                  Alignment Scores:
Pred. No.:
                                                              LENGTH: 1559
TYPE: DNA
                                                                                                                                                                                                                                                                                                 219
                                                                                                                                                                                                                                                                                                                                                   239
                                                                                                                                                                                                                                                                                                                                                                           172
                                                                                                                                                                                                                                                                                                                                                                                                    255
                                                                                                                                                                                                                                                                                                                                                                                                                                                      256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         431
                                                                                                      FEATURE
                                                                                                                                                                                               Score:
                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                        요
                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             중 음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
```

-SerThrGly 137

Qy 506 LeualanspalaLysMetAsnAsnGlyTyrAspArgGlu- Db 3403 CACGCAAACTGCGGATTAGCGATGTTTTGACCGGAGC Qy 519GluMetAlaArgMetValAlaCysAlaAlaA Db 3463 TTAGAGATCGAACTTTTACAACATTTAAAAGTTGCGGTTG Qy 536 ArgArgArgProArgMetSerGlnIleValargAlaLeuG Qy 533 TGGAGACGACCGACATGGTACAAGTCATGATTAA Qy 555SerAspLeuAsnGluGlyM Qy 555SerAspLeuAsnGluGlyM Qy 558 VAITYLSERSETTCACAGGTCAACGATCAATGAGAGGATTAA Qy 568 VAITYLSERSETTYRGLYGLYSETTLAASPTYLASSPSERS Qy 568 VAITYLSERSETTYRGLYGLYSETTLAASPTYLASSPSERS	SULT 9 S-09-579 S-09-579 S-09-579 S-09-579 S-09-579 S-09-579 S-09-579 S-09-579	ignment S ed. No.: ore: crent Sim st Local ery Match : 10-086-4	Db 28 TCTCGGAACTACAATGGTTTGGAGCTATGGGAGATAATAG Qy 148 AlaLeuLeuValIleValThrLeuIleCysLeuLeuCysL 15	Cy 184AlaGlyGlyProTyrGlyGlyBootyrGlyGlyGlyGlyGlyGlyGlyGlyGlyGlyGlyGlyGlyG
158 Leu	2703	CGAAATCTTGTCCCTCTTCTTGGTAATTGCAAAGTTGGAGACGAGCGGCTTCTTGTTAAT GLUPheValProAsnAsnAsnLeuGluLeuHisGlyGluGlyAzgPro	3085 CITCACCACAACTGCAGTCCGCATATCATCCACAGAGACATGAAATCCAGTAATGTTG 3144 407 IleAspPheLysPheGlualaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAsp 426 :::	446 TyralahlaSerGlyLygLeuThrGluLygSerAspValPheSerPheGlyValValLeu 465
8 8 8 8 8 8 8	8 8 8 8 8 8 8 8 8	8 8 8 8 8	8 8 8 8	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6

ò	tAsnAsnGlyT
QD	
ò	519GluMetAlaArgMetValAlaCysAlaAlaAlaCysValArgHisSerAla 535
QQ	3463 TTAGAGATCGAACTTTTACAACATTTAAAAGTTGCGGTTGCGTTTGGATGATCGGGCT 3522
ò	536 ArgArgArgProArgMetSerGlnIleValArgAlaLeuGluGlyAsnValSerLeu 554
QQ	CATGGCCATGTTTAA-GGAG
ò	555SerAspLeuAsnGluGlyMetArgProGlyGlnSerAsn 567
qa	• ₽-
ò	568 ValTyrSerSerTyrGlyGerThrAspTyrAspSerSerGlnTyrAsnGluAsp 586
qa	3627GTTCAGTACAATAGAGAT 3644
RESULT US-09- Sequ Pate GENE APP TIT TIT FILL	9 579-182-3 ence 3, Application nt No. 6500628 RAL INFORMATION: LE OF INVENTION: N. LE OF INVENTION: P. E REFREENCE: MNI-1E RENT APPLICATION NI-1E
SES O-S	
Alignment S. Pred. No.: Score: Percent Sim. Best Local; Query Match DB:	Alignment Scores: 1.81e-17 Length: 1224 Score: 602.00 Matches: 153 Percent Similarity: 48.41% Conservative: 60 Best Local Similarity: 34.77% Mismatches: 157 Query Match: 17.43% Indels: 9 Gaps: 9
US-10-	-086-464-2 (1-647) x US-09-579-182-3 (1-1224)
ð í	128 SerProSerSerAspGlyLeuSerThrGlyValValValGlyIleAlaileGlyGlyVal 147
3 &	
q	
ò	168 GluGluAspAlaTyrTyrValProProProProProProGlyProLys 183
QQ	148 TCTTCTAATCCCTGTTAGTCGCCAGATTCCTCCTAGTGTTCCTGAAGAGATTAAA 207
ò	184AlaGlyGlyProTyrGlyGlyGlnGlnGlnGlnTrpArgGln 197
q	208 GAGATTAGAGTCGACGAGGTTTCTTCAAGCAATGGTGGG246
ò	198 GlnAsnAlaThrProProSerAspHisValValThrSerLeuProProProPro 215
qq	247AATGGATACCCCTCTATTAGTGAGAAATTTGGCGATAAAGAACCCGAAAAAGGGGATA 303
ò	216 LysAlaProSerProProArgGlnProProProProProProProProPheMetSerSer 235
qq	304 AAAGCAGAGTCAGAAAAATGGCGATAGTAGCCGGTCAGGCTCGTTTAATCACTTGGAGAAA 363

```
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 11, Application US/09228986

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent No. 6159198

Patent N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACTGGTAGATATCCGGTAGACTATGCTCGTCCACCCGAGGTACATTTGGTGGAGTGG 1023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1024 CTGAAGATGATGGTC------CAACAAAGACGATCAGAAGAAGTGGTTGATCCA 1071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LeuVal-------LeuGlyPheSerLysSerThrPheThrTyrGluGluLeuAla 269
                                                                                                    HisLeuValSerLeuValGlyTyrCyslleAlaGlyAlaLysArgLeuLeuValTyrGlu 349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          390 AspCysAsnProLysllelleHisArgAspIleLysAlaSerAsnIleLeuIleAspPhe 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LyBPheGluhlaLyBValAlaAspPheGlyLeuAlaLyBIleAlaSerAspThrAsnThr 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                963
                                   AAAGACGGATCGAGCGTATCTTCTGCTAATCCTTTGACAGCTCCATCTCCTTTGTCTGGT 423
                                                                                                                                                        270 ArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrval 289
                                                                                                                                                                                                                                     HisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysValGlySer 309
                                                                                                                                                                                                                                                                                                                    GlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHisHisArg 329
                                                                                                                                                                                                                                                                                                                                                         GGACAAGCTGATAAAGACTTCAGAGTTGAAGTTGAAGCTATAGGTCACGTTCGACATAAA 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PheValProAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGlu 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TrpSerThrArgLeuLyslleAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGlu 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlyLysLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGluLeuIle 469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ThrGlyArgArgProValAspAlaAsnAsnAsnValTyrValAspAspSerLeuValAspTrp 489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAla 509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAlaAlaAla 529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CysValArgHisSerAlaArgArgProArgMetSerGlnIleValArgAlaLeuGlu 549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----crcccgraccricaceae 723
                                                                                                                                                                                 SerGlyGlySerAspTyrSerAspArgProValLeuProProSerPro
                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-228-986-11
                                     364
                                                                                                                                                                                                                                       290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  350
                                                                                                                                                                                               481
                                                                                                                                                                                                                                                                            541
                                                                                                                                                                                                                                                                                                                                                                                                   330
                                                                                                                                                                                                                                                                                                                                                                                                                                           661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 510
                                                                             254
                                                                                                                  124
                                                                                                                                                                                                                                                                                                                    310
                                                                                                                                                                                                                                                                                                                                                           601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                530
                           음
                                                                           6 B 6
                                                                                                                                                                                   셤
                                                                                                                                                                                                                                     8 6
                                                                                                                                                                                                                                                                                                   8 6 8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8 6 8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8 8 8 8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8 8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ठे
```

```
1820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GINProSerProProAlaProThrThrProGlySerProProAlaProValThrPro--- 95
:::
AGAGCTGAAAGACCTTCACCTACTGGACTTGGAGAATAACCTGCTACAAG-GTACCTTAC 1641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ||||
|TCTCCACAACCGCGTGC-GGTGATGCATCTAGTCCTTCAATTGAGGCACCGCAAGTT 1760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |||:::::: |||
|CTGCAAGTTCTGGACGTCCAAAACAACAGCTTAGACGGAGTTGTTCCCGACGGCTTGGG 1582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----ATGTCATATACGGAA 1910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1911 AGGGCAGTCGCAGACGTGAGAACTCGAAT---------GCAGCTAAGATTTTT 1955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CAGATTCCTTGAACAGACAGAGCTTGGAGGTCAGAACCTCAGGAAACTTGTGTCTTTCCT 1701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCCTACAAAGAGATCAAAACAGCTACAAACAACTTTAAAGAA-----GTCATTGGTCAT 2009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ------ProSerProSerSerAspGlyLeuSerThrGlyValValValGlyIleAla 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLyBGluValAlaValLys 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      144 IleGlyGlyValAlaLeuLeuValIleValThrLeuIleCysLeuLeuCysLysLysLys 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ArgArgArgAspGluGluAspAlaTyrTyrValProProProProProGlyProLys 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          184 AlaGlyGlyProTyrGlyGlyGlnGlnGlnGlnTrpArgGlnGlnAsnAlaThrProPro 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerAspHisValValThrSerLeuProProProProLysAlaProSerProArgGln 223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   264 ThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGln 283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----ProThrArgAsnProProSerValProGlyProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerAsnProSerArgGluGlyGlySerProArgProProSerSerProSerPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ProProProProProProProPheMetSerSerGlyGlySerAspTyrSerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  244 ArgProValLeuProProProSerProGlyLeuValLeuGlyPheSerLysSerThrPhe
                                                                                                                                                                                                                                                 3097
173
80
172
126
13
                                                                                                                                                                                                                                                 Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                    US-10-086-464-2 (1-647) x US-09-228-986-11 (1-3097)
             CURRENT APPLICATION NUMBER: US/09/228,986
CURRENT FILING DATE: 1999-01-12
NUMBER OF SEQ ID NOS: 130
SOFTWARE: FestSEQ for Windows Version 3.0
SEQ ID NO 11
LENGTH: 3097
LYPE: DNA
ORGANISM: Eucalyptus grandis
                                                                                                                                                                                                                                                                                                                                                                                                                                           ProSerThrProGlySerProProPro----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1881 AGAGGAAGAACTGAA-----
                                                                                                                                                                                                                                               4.95e-17
600.50
46.08%
31.51%
17.39%
REFERENCE: 11000/1020
                                                                                                                                                                                                                                                                                                              Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                           Percent Similarity:
                                                                                                                                                                                                                               Alignment Scores:
                                                                                                                                                                                      US-09-228-986-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       127
                                                                                                                                                                                                                                                     . . . . . .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
```

```
TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
US-08-587-889-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         쉽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                            2369
                                                                                                                                                                                                                                                                                                                                                                                                      2486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2825
                            2070 GIGCGGITIGAIAAAACCCAACIIGGIGCAGAIICTIIICAIAAAIGAGGIICGICITIA 2129
                                                                                                                                          2370 TGCAGTAATACTATTGGACAAGGAGATGAATGCAAGACTTTGGGACTTTGGGCTCTCT 2429
                                                                                                                                                                                                                                                                                                                                                                                                                                                        2487 GGTTACCTCGACCCTGAATATTACTCCACCCAACAACTTACAGAGAAAAGGGACGTCTAT 2546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCAGGTGCATTTGAG---ATAGTGGATGAGAGTTTAGGGGGAAGTTTCGATGTGGAAAGC 2711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ----rarctaga carataga arata ara
                                                                                                                                                                                                                                                                                                                                                                                                                                     459
                                                                                                                                                                                                                                               401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SerPheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsn 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            480 ValTyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGlu 499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         500 GlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGlu 519
                                                             SerArgValHisHisArgHisLeuValSerLeuValGlyTyrCysIleAlaGlyAlaLys 343
                                                                                                                     344 ArgLeuLeuValTyrGluPheValProAsnAsnAsnLeuGluLeuHisLeuHisGlyGlu 363
                                                                                                                                                                                    364 Gly-----ArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySerAla 381
                                                                                                                                                                                                                                                                                                            AlaSerAsnIleLeuIleAspPheLysPheGluAlaLysValAlaAspPheGlyLeuAla 421
GlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIle 323
                                                                                                                                                                                                                                                                         2310 AAAGGACTGGACTATCTACATAATGGAAGCAATCCTCGAATCATACACCGAGACATCAAG
                                                                                                                                                                                                                                                                                                                                                                          Lys-----IleAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPhe
                                                                                                                                                                                                                                                                                                                                                                                          GlyTyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2712 ATGAGGAAAGTGGCAAAAATCGCTGTGAGGTCTGTAGAGAGGGATGCATCACTAAGGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2130 TCACAAGTCCGCCATCAGAACCTTGTCAGTCTGGAAGATTTTGTTATGAGTCGCAGGGT
                                                                                                                                                                                                                                               LysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAspIleLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGCTTTGGAGTTGTGTGTTTTGGAGCTCATCTGTGGACGAGGGCGGTTAAATCATTCAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MetalaargmetValalaCysAlaAlaAlaCysValArgHisSerAlaArgArgPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               540 ArgMetSerGlnIleValArgAlaLeuGluGly-----AsnValSerLeuSerAspLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AsnGluGlyMetArgProGlyGlnSerAsnValTyrSerSerTyrGlyGlySerThrAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: CROSTON, Glenn E. APPLICANT: CROSTON, Glenn E. APPLICANT: GOEDDEL, David V. TITLE OF INVENTION: INTERLEUKIN-1 RECEPTOR-ASSOCIATED TITLE OF INVENTION: PROTEIN KINASE AND BINDING ASSAY NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS: ADDRESS: ADDRESSEE: FLEHR, HOHBACH, TEST, ALBRITTON & HERBERT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2853 TGAATCTACTCGTATTACAACCAAGAC 2879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       578 TyrAspSerSerGlnTyrAsnGluAsp 586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 1, Application US/08587889
Patent No. 5654397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-587-889-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2547
                                                             324
                                                                                                                                                                                                                                                                                                              402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2826
                                                                                                                                                                                                                                                 382
                                                                                                                                                                                                                                                                                                                                                                                                                                       440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     520
                                                                                                                                                                                                                                                                                                                                                                          422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 11
                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      원
                                                                                   요
                                                                                                                       ò
                                                                                                                                           유
                                                                                                                                                                                à
                                                                                                                                                                                                            g
                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                           ò
```

```
380 GCCTGGCACCCTCCCGCCTTCCGTCCCCAGGCACCACTGCCCCGA------GG 430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           88 rProProAlaProValThrProProThrArgAsnProProProSerValProGlyProPr 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                oSerAsnProSerArgGluGlyGlySerProArgProProSerSerProSerProProSe 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |||:::|||||| |||||||| 519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          200 cacitecreccaciriceccecerearcereceaeccaeccaacreceecrereceae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             260 cecrecesecascecacescascerecresesceresesceresareaacescaaceseses 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        140 chagarcaccáciaggachargagaccicitathanharghagaccaccagagaccacc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            431 CCCAGCAGCACCCTGCACCCGCCG-----AGGCCGAGGCCTGGAGCCCCCGGA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MetSerSerAlaProSerPro-GlyThrGlySerProProSerProProSerAsnSerTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       40 ----ProProSerThrIleProThrSerProProProSerSerArgSerThrProSerAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         58 aProProProSerProPro------ThrProSerTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             68 rProGlySerProProProLeuProGlnProSerProProAlaProThrThrProGlySe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3590
208
86
239
229
229
                                                                                                                                                                  SYSTEM: PC_DOS/MS-DOS
PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-086-464-2 (1-647) x US-08-587-889-1 (1-3590)
4 Embarcadero Center, Suite 3400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20 rThrThrProProProAlaSerAla----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps:
                                                                                                                                                                                                   CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/587,889
FILING DATE:
                                                                                                                                                                                                                                                                      CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Genan Ph.D., Richard Aron
REGISTRATION NUMBER: 36,627
REFERENCE/DOCKET NUMBER: A-60916
TELECOMMUNICATION: INFORMATION:
                                       ZIP: 94111-4167
COMPUTER READABLE FORM:
MEDION TYPE: Ploppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/Mc "-
SOFTWARE: Pare---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       oThrThrProSerSerProPro-
                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEX: 910 277299
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 3590 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                       TELEPHONE: (415) 494-8700
TELEFAX: (415) 494-8771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3.48e-16
581.50
38.68%
27.37%
16.84%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         double
                      San Francisco
California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: nucleic acid
STRANDEDNESS: doub
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY: 11 MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment Scores:
```

39

28

32

20

88

```
1101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -------GAGGAGGCTGAGGAGTGGCTTTGAGAAGCACCAGAG 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCAGACCCAGGCCTGCCCACCTCTCTGGCCTCAGCGACTGGACATCCTTCTGGGTAC 1044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |||| GGCCCGGTTCAGCCGCTTTGCCGGGTCCAGCCCAGAGCAGCAGAGCATGGTGGCCCGGAC 1221
                                    556
                                                                                                                       228
                                                                                                                                                                               248
                                                                                                                                                                                                          627
                                                                                                                                                                                                                                      266
                                                                                                                                                                                                                                                                   687
                                                                                                                                                                                                                                                                                               286
                                                                                                                                                                                                                                                                                                                           747
                                                                                                                                                                                                                                                                                                                                                       306
                                                                                                                                                                                                                                                                                                                                                                                    804
                                                                                                                                                                                                                                                                                                                                                                                                                 322
                                                                                                                                                                                                                                                                                                                                                                                                                                              864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 420 uAlaLys11e------AlaSerAspThrAsnThrHisValSerThrArg-- 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 452 uThrGluLysSerAspValPheSerPheGlyValValLeuLeuGluLeulleThrGlyAr 472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            472 gArgProVal-----AspAlaAsnAsnValTyrValAspAspSerLeuValAspTr 489
                                                                                                                                                  594
                                                                                                                                                                                                                                                         AGAGAGCTCAGTGTCCCTCCTGCAGGAGCCCGCCCTCTCCGTTTTGCTGGCCCCTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTTCTACTGCCTGCTGTACGCCTTCCTGCCCAACGGCTCCCTGGAGGACCGTCTCCACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           360 uHisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIJeAlaLeuGlySe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  eGlyTyrValHisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLy
                                                                                                                                                                                                                                                                                                                                                                          sValGlySerGly------GlnGlyGluArgGluPheGlnAlaGluValGluIl
                                                                                                                                                                                                                                                                                                                                                                                                                                     322 elleSerArgValHisHisArgHisLeuValSerLeuValGlyTyrCyslleAlaGlyAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           342 alysArgleuLeuValTyrGluPheValProAsnAsnAsnLeuGlu-----LeuHisLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            erysAlaSerAsnIleLeuIleAspPheLysPheGluAlaLysValAlaAspPheGlyLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----ValMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGlyLySLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             aLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAla------
                                                               188 rGlyGlyGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAspHisValVa
                                                                                                                       108 lThrSerLeuProProProLysAlaProSerProProArgGlnProProProProPr
                                                                                                                                                  -----cragriccaacccracriccraraccricaccc
                                                                                                                                                                                 oProProProPheMetSerSerGlyGlySerAspTyrSerAspArgProValLeuPr
                                                                                                                                                                                                                                      oProProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGlu----
                                                                                                                                                                                                                                                                                               -GluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ralaLysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAspIl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        pAlaArgProLeuLeuAsnArgAlaSerGluGluGlyAspPheGluGlyLeuAlaAspAl
                     -666CCTGAGCTCGGC-
                                                                                                                                                                                                            595 ATCTCCAGCCCCTTCTTCTACCAAGCCAGGC-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    380
                                    542
                                                                                                                                                     557
                                                                                                                                                                                 228
                                                                                                                                                                                                                                         248
                                                                                                                                                                                                                                                                      628
                                                                                                                                                                                                                                                                                                  267
                                                                                                                                                                                                                                                                                                                                                         286
                                                                                                                                                                                                                                                                                                                                                                                      748
                                                                                                                                                                                                                                                                                                                                                                                                                  306
                                                                                                                                                                                                                                                                                                                                                                                                                                               805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 509
                                                                                             556
                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                      g
                                                                                                                         ò
                                                                                                                                              g
                                                                                                                                                                               ò
                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                        엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAGGTGCCGCCCTGGGTCATGTGCCGCTTCTACAAAGTGATGGACGCCCTGGAGCCCCCGCC 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACTGGTGCCAGTTCGCCGCCCTGATCGTGCGCGACCAGACCGAGCTGCGGGCTGTGCGAG 259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cecrecesecasececasecerecirereresecerecarearearesececaacececases 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCGACCTCGTGCACTCCTCACGCACCTGCTGCTCCGTGCGCGGGACATCATCACA 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rProProAlaProValThrProProThrArgAsnProProProSerValProGlyProPr 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     oSerAsnProSerArgGluGlyGlySerProArgProProSerSerProSerProProSe 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            rProSerSerAspGlyLeuSerThrGlyValValValGlyIleAlaIleGlyGlyValAl 148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               uGluAspAlaTyrTyrValProProProProProProGlyProLysAlaGlyGlyProTy 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rProGlySerProProProLeuProGlnProSerProProAlaProThrThrProGlySe 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ------AGTTGCCATCCTCAGCTTCCTCTC-TCCTC-TCCCTGGCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MetSerSerAlaProSerPro-GlyThrGlySerProProSerProProSerAsnSerTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   rThrThrThrProProPlaSerAla-------------------------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ---- ProProSerThr11eProThrSerProProSerSerArgSerThrProSerAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       aLeuLeuValIleValThrLeuIleCysLeuLeuCysLysLysLysArgArgArgAspGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GeeregeAccerecededecerrecereceageAcacacacececes
                                                                                                                                                                                                                                                                                                                                                         3590
208
239
229
28
                                                                                                                                                                                                                                                                                                                                                                                       Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-086-464-2 (1-647) x US-09-016-434-1093 (1-3590)
                                                                                                                                                                                                                                                                                                                                                          Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          rccaggcrccagacccarrca-----
                                                                                                                          as
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE:
CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: Zeller; Karen J.
REFERENCE/DOCKET NUMBER: 37,071
REFERENCE/DOCKET NUMBER: PA-0002
TELECOMMUNICATION INFORMATION:
TELEPHONE: (650) 845-4166
INFORMATION FOR SEQ ID NO: 1093:
SEQUENCE CHARACTERISTICS:
LENGTH: 3590 base pairs
TYPENDEDNESS: single
TYPENDEDNESS: single
TYPENDEDNESS: single
TYPENDEDNESS: single
TYPENDEDNESS: Single
TYPENDEDNESS: Single
TYPENDEDNESS: Single
TYPENDEDNESS: SINGLE
IMMEDIATE SOURCE:
LIBRARY: GENDANK

LIBRARY: GENDANK

LIBRARY: GENDANK
                                                                                                                          PA-0002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             oThrThrProSerSerProPro-
                                                                                                                                                                                                                                                                                                                                                            48e-16
                                                                                                                                                                                                                                                                                                                                                                       581.50
38.68%
27.37%
16.84%
                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  480
                                                                                                                                                                                                                                                                                                                                                            Pred. N
Score:
```

g

ò ద ò

ò

q

8 8

8 8 8

8 8 8 8

g

ò

요 ò

```
PCT-US96-09193-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                   32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          541
                                                                                                                                                                                                                                                           Query Match:
                                                                                                                                                                                                       ..
No..
                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                    1669 GCATTTGGAGGCCGCCAGCTGCATCCCCCTTCCCCGCAGGAGACTCCTACGTGTCCAG 1728
                                                                                                                                                                                                                                                                             | ::: ||| |-|||| G-----AGCCTAGGGGCTCCTGGCACTTGACTCCAAGCTG 1902
1441 CACACTGCAAGCAGGTCTGGCTGCAGATGCCTGGGCTGCTCCCATCGCCATGCAGATCTA 1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                               1903 ccereragaeceageaececereaggaggeeggergreereagggaagkege-kegae 1961
                                                                                                                                             564
                                                                                                                                                                                                                                                                                                                                                                           599 uTyrAsnAlaThrGlyGluTyrSerAsnProThrSerAspTyrGlyLeuTyrProSer-- 618
                                                                                                                                                                                                    Y----GlnSerAsnValTyrSerSer- 571
                                                                                                                                                                                                                                                                                                                     580 -SerSerGinTyrAsnGluAspMetLysLysPheArgLysMetAlaLeuGlyThrGlnGl 599
                                                                                                                                                                                                                                                                                                                                                                                                                                      -----GlySerSerGluGlyGlnThrThrArgGl 629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             629 uMetGluMetGly------Ly8lleLy8ArgThrGlyGlnGlyTyrSerGlyPro 645
                                                                                  ----CysAlaAlaAlaCysValArgHisSerAlaArgArgArgArgProArgMetSerGlnIl
                                                       1501 CAAGAAGCACCTGGACCCCAGGCCCGGGCCCTGCCCACCTGAGCTGGGCCTGGGCCTGGG
                                                                                                                                             eValArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGl
                                                                                                                                                                                                                                                            572 -----TyrGlyGlySerThrAspTyrAsp------TyrGlyGlySerThrAsp-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE: FLEHR, HOHBACH, TEST, ALBRITTON & HERBERT STREET: 4 Embarcadero Center, Suite 3400 CITY: San Prancisco STATE: California COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 1, Application PC/TUS9609193
GENERAL INFORMATION:
APPLICANT: Tularik, Inc.
TITLE OF INVENTION: INTERLEUKIN-1 RECEPTOR-ASSOCIATED
TITLE OF INVENTION: PROTEIN KINASE AND BINDING ASSAY
NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DAIL.
CLASSIFICATION:
CLASSIFICATION DATA:
APPLICATION NUMBER: U.S. Serial No. 08/587,889
FILING DATE: JAN 16 1996
CLASSIFICATION:
APPLICATION NUMBER: U.S. Serial No. 08/494,006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
PELLCATION NUMBER: PCT/US96/09193
FILING DATE: JUNE 5 1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATTORNEY/AGENT INFORMATION:
NAME: David J. Breaner
REGISTRATION NUMBER: 24,774
REFERRNCE/DOCKET NUMBER: FP-62191-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ZIP: 94111-4187
COMPUTER READABLE FORM:
CMRDIUM TYPE: Floppy disk
CMRDIUM TYPE: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                    --------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PCT-US96-09193-1
                                                                                    526
                                                                                                                                                                                                                                                                                                                                                                                                         1849 (
                            525
                                                                                                                                             544
                                                                                                                                                                                                   564
                                                      유
                                                                                    ઠે
                                                                                                       원
                                                                                                                                          ઠે
                                                                                                                                                                     셤
                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ठे
                           ò
```

```
430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             oSerAsnProSerArgGluGlyGlySerProArgProProSerSerProSerProSe 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          128 rProSerSerAspGlyLeuSerThrGlyValValValGlyIleAlaIleGlyGlyValAl 148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         208 lThrSerLeuProProProLysAlaProSerProProArgGlnProProProProPr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       140 GAGGTGCCGCCCTGGGTCATGTGCCGCTTCTACAAAGTGATGGACGCCCCTGGAGCCCCCGCC 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  200 GACTGGTGCCAGTTCGCCGCCCTGATCGTGCGGGACCAGACCGAGCTGCGGGCTGTGCGAG 259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            260 cecrécisecráciseracesécracericireresecécricaaricaacesearicidececerere 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         120 GCCGACCTCGTGCACATCCTCACGCACCTGCTGCTCCGTGCGCGGGACATCATCACA 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     88 rProProAlaProValThrProProThrArgAsnProProProSerValProGlyProPr 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     aLeuleuVallleValThrLeuIleCysLeuLeuCysLysLysLysArgArgArgAspGl 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  168 uGluAspAlaTyrTyrValProProProProProProGlyProLysAlaGlyGlyProTy 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ------- GGGCCTGAGCTCGGC----- 556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            rGlyGlyGlnGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAspHisValVa 208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        68 rProGlySerProProProLeuProGlnProSerProProAlaProThrThrProGlySe 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           380 GCCTGGCACCCTCCCGCTTCCGTCCCCAGGCACCACTGCCCGGA-----GG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ----ProProSerThrIleProThrSerProProSerSerArgSerThrProSerAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -------AGTTGCCATCCTCAGCCTCCACCTTCCTC-TCCCAGCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MetSerSerAlaProSerPro-GlyThrGlySerProProSerProProSerAsnSerTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3590
208
239
229
28
                                                                                                                                                                                                                                                                                                                              Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-086-464-2 (1-647) x PCT-US96-09193-1 (1-3590)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         520 TCCAGGCTCCCAGACCCATTCA-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      oThrThrProSerSerProPro-
                 TELEPAX: (415) 494-870
TELEFAX: (415) 494-871
TELEX: 910 277299
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 3590 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
FELECOMMUNICATION INFORMATION
                                                                                                                                                                                                                                                                                                                              3.48e-16
581.50
38.68%
27.37%
                                                                                                                                                                                                                  linear
                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                             TOPOLOGY: li
                                                                                                                                                                                                                                                                                                          Alignment Scores:
```

OV 1621 GTACGAGAGGCTAGAGGCTAGAGGCTAGAGGCTAGAGGCTAGAGGCTAGAGGCTAGAGGCTAGAGGCTAGAGGCTAGAGGCTAGAGGCTAGAGGCTAGAGGCTAGAGGCTAGAGGCTAGAGGCTAGAGGCTAGAGGCTAGAGGCCTAGGAGGCCTAGGAGGCCCTAGGAGGGCCTAGGAGGCCCTAGGAGGGCCGCAGGCAG		964 342 360 984	380 1044 400 1101 420	434 1221 452 1281 472	489 1396 509 1440 US-C	CGCAGATCTA 1500 Pred. No.: 2.96e-16
OPTOPIOPHEMETSETSETSETSTANDERSCORDERS		805 GGAGAACGCTGACCTGGAGTGCAGTGAAGCAGAGGTTCCTGACCGAGGTGGAGCA 322 elleSerArgValHisHisArgHisLeuValSerLeuValGlyTyrCysIleAlaGlyAl :::	360 uHisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySe :::			509 aLyghetAshAshGilyTyrAspArgGildiuMetAlaArgMetValAla

```
UASpMetLyslysPheArgLysMetAlaLeuGlyThrGlnGl 599
            |||:::
stggggctgctccatggcagcccttggcagcgccatcagaagc 1788
                                                                                                                                                                                              :::||| ||| |||
CCTCAGGGAGGCCGGCTGTCTCAGGGGACACGGC-AGGAG 1961
                                                                                        ydlyserThrAspTyrAsp----- 579
                                                                                                                                                                               .uTyrserAsnProThrSerAspTyrGlyLeuTyrproser-- 618
.yAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGl 564
                                                                                                                                                                                                                          ------GlySerSerGluGlyGlnThrThrArgGl 629
                                                                                                                                                                                                                                                                     ----LysileLysArgThrGlyGlnGlyTyrSerGlyPro 645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2114
143
85
136
51
                                                                                                                                                                                                                                                                                                                                                                                                          Disease Resistance Genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -602-472A-5 (1-2114)
                                                                                                                                                                                                                                                                                                                                                                                                                              JS/09/602,472A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                            6-23
/140,876
                                                                                                                                                                                                                                                                                                                                         02472A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    or G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               or G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         or G
```

```
594 AlaLeu-----GlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnProThrSer
                                                                                                                                                                                                                                                                                  APPLICANT: Rothstein, Steven J.
APPLICANT: Goring, Daphne
TITLE OF INVENTION: S-LOCUS RECEPTOR KINASE GENE IN A
TITLE OF INVENTION: SELF-INCOMPATIBLE BRASSICA NAPUS LINE
NUMBER OF SEQUENCES: 10
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ⋖
                                                                                                                                                           1176 gar---recererake---aaggaegeeracaaaarggacaa 1211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCATION: 1..2574
PUBLICATION INFORMATION:
AUTHORS: GORING, DAPHNE
AUTHORS: GORING, STEVEN J.
TITLE: THE S-LOCUS RECEPTOR KINASE GENE IN A
TITLE: SELF-INCOMPATIBLE BRASSICA NAPUS LINE ENCODES
TITLE: FUNCTIONAL SERINE/THREONINE KINASE
RELEVANT RESIDUES IN SEQ ID NO: 1: FROM 1 TO 2749
                                                                                                                          612 AspTyrGlyLeuTyrProSerGlySerSerSerGluGlyGln 625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                             E: McAndrews, Held & Malloy, Ltd. 500 W. Madison St. Suite 3400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE:
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/07/959,945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/265,628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US 07/847,564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME: Pochopien Ph.D., Donald J. RELECOMMUNICATION INFORMATION: TELECOMMUNICATION: TELEPHONE: 312-707-8889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                               US-08-265-628-1
; Sequence 1, Application US/08265628
Patent No. 5821094
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S-locus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 03-MAR-1992
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM: Brassica napus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 2749 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               312-707-9155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHROMOSOME/SEGMENT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAIN: oleifera
INDIVIDUAL ISOLATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER: IBM PC (
                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE: McAndr
STREET: 500 W. Ma
CITY: Chicago
STATE: Illinois
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POSITION IN GENOME:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORIGINAL SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS
TOPOLOGY: 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAIN:
                                                                                     g
                                                                                                                                                       셤
                                                     ò
                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |||||||
945 CTTGAGTCAATCCTAGCCTTACAGGAGAAAACCGAGAGTACATGGGTACCAACATTTCTC 1004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .005 TITICCA-----TCCACTTGGGAAAAGACAGTTGGAGGTACAGATTTAAAATCCCTG 1055
                                                                                                                                         275 PheSerGluAlaAsnLeuLeudlyGlnGlyGlyPheGlyTyrValHisLysGlyValLeu 294
                                                                                                                                                           190 ACTTATGGGGAAACATACTTGGATGCTGCAATTAAGCGACTGGAATCAGGTTCTAGTCAA 249
                                                                                                                                                                                                                                                                                                      310 GTGTCTTTAATTGGTTACTGTAGTGATGGCAAGAGATGGTTCTTGTATGAACATATG 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                       372 ThrArgLeuLysIleAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHis-----Glu 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         390 AspCysAsnProLysIleIleHisArgAspIleLysAlaSerAsnIleLeuIleAspPhe 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              128 ABNThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAla 447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           448 AlaSerGlyLysLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGlu 467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               667 CAAACAGGIAGGCTGACTCGAAAGTCTGACGTGTATGCCTTTGGGGTGGTCCTGTTGAA 726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      488 AspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAla 507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   885 GACCGGTGTTTGCATAGCCGTCCCAAGCAACGTCCTGCAATGGCGGAGGTTGTGATTGGT 944
                                                                    255 ValLeuGlyPheSerLysSerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGly 274
                                                                                          295 ProSerGlyLys-----GluValAlaValLysGlnLeuLysValGlySerGlyGln 311
                                                                                                                                                                                                                                                                                     GlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHisHisArgHisLeu 331
                                                                                                                                                                                                                                                                                                                                                          ValSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuValTyrGluPheVal 351
                                                                                                                                                                                                                                                                                                                                                                                                                               ProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrpSer 371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                410 LysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIle-----AlaSerAspThr 427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeulleThrGlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuVal 487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ------AAAGAAGGAAGGCTAAAGCAAATTGTT 824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AspalaLysMetAsnAsnGlyTyrAspargGluGluMetAlaArgMetValAlaCysAla 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 528 AlaAlaCyeValArgHisSerAlaArgArgArgProArgMetSerGlnIleValArgAla 547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     562 ArgProGlyGlnSerAsnValTyrSerSerTyrGlyGlySerThrAspTyrAspSerSer 581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               582 Gln------TyrAsn-----GluAsp-----MetLysLysPheArgLysMet 593
 235 SerSerGlyGlySerAspTyrSerAspArgProValLeuProProProSerProGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    52 GCTGAATCTTCCTCCTCATATTCACCACAACCGTGC----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       777 ACATGGGCTCAAGACTCTCTT
                                                                                                                                                                                                                                                                                     312
                                                                                                       88
                                                                                                                                                                                                                                                                                                                                                            332
                                                                                                                                                                                                                                                                                                                                                                                                                                352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            508
                                                                                                                                                                                                                                                                                                                     셤
                               d
                                                                                                  셤
                                                                                                                                         ò
                                                                                                                                                                          셤
                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ሯ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ሯ
                                                                      ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ठे
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
```

```
Search con
Job time
                                                       8 6 8 6 8 6 8 6
                                                                                                                                                                                                                                                                                    d
                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                    유
                                                                                                                                                                                                                                                                                                         ò
                   8 %
                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                               1512
                                                                                                                                                                                                                                                                                                                                                                     1629
                                                                                                                                                                                                                                                                                                                                                                                                        1689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1989
                                                                                                                                                                                                                                                                                                                                                                                                                                 ||||||||:::|||
------CGACAGAGAAC-------CAAGATTTGCTAATGAAC 1479
                                                                                                                                                                                                                                                                                                                               ||| :::
------GAGTTGGAAGCTGTTGTC 1569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PheLysPheGlualaLysValalaAspPheGlyLeualaLysIlealaSerAspThrAsn 428
                                                                                                                                                                                                                                                                                                                                                                                      HistysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysValGlySer 309
                                                                                                                                                                                                                                                                                                                   ProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGluLeuAla 269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ThrHisValSerThrArg---ValMetGlyThrPheGlyTyrLeuAlaProGluTyrAla 447
                                                                                                    SerSerAspGlyLeuSerThrGlyValValValGlyIleAlalleGlyGlyValAlaLeu
                                                                                                                                       LeuValileValThrLeuIleCysLeuLeuCysLysLysLysArgArgArgAspGluGlu
                                                                                                                                                        crecrrcrrargarcargrrcrec---crcregaaaaggaaacaaaagcgagcaaaaaca
                                                                                                                                                                                                           GlyGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAspHisValValThr
                                                                                                                                                                                                                                                            270 ArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrVal
                                                                                                                                                                                                                                                                                                                                                                HisLeuValSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuValTyrGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PheValProAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArg---ProThrMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AspalaTyrTyrValProProProProProProGlyProLysAlaGlyGlyProTyrGly
                                                                                                                                                                                            ACTGCAACATCTATTGTAAAT------
                                                                                                                                                                                                                                               SerLeuProProProLysAlaProSerProProArgGlnProProProProProPro
                                                                                                                                                                                                                                                                                ProProPheMetSerSerGlyGlySerAspTyrSerAspArgProValLeuProPro
                                                                                                                                                                                                                                                                                           GlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHisHisArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GluTrpSerThrArgLeuLysIleAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GluAspCysAsnProLysIleIleHisArgAspIleLysAlaSerAsnIleLeAsp
                                                                                                                  2749
154
94
160
91
                         Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                     US-10-086-464-2 (1-647) x US-08-265-628-1 (1-2749)
                                                                                                                                                                                                                                                                                                                                     5.04e-16
575.00
49.80%
30.92%
16.65%
                                       Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                  ignment Scores:
US-08-265-628-1
                                                                                                                        1327
                                                                                                                                                                                            1429
                                                                                                                                                                                                                                                                                                                                    1552
                                                                                                                                                                                                                                                                                                                                                                                                                                          0691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1750
                                                                                                                                                         1372
                                                                                                                                                                          170
                                                                                                                                                                                                             190
                                                                                                                                                                                                                              1450
                                                                                                                                                                                                                                                210
                                                                                                                                                                                                                                                                                  230
                                                                                                                                                                                                                                                                                                   1513
                                                                                                                                                                                                                                                                                                                    250
                                                                                                                                                                                                                                                                                                                                                                                       290
                                                                                                                                                                                                                                                                                                                                                                                                                         310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      429
                                                                                                                                         150
                                                                                                                                                                                                                                                                                                                                                                                                                                                            330
                           ..
No.:
                                                                                                      ò
                                                                                                                      셤
                                                                                                                                                     d
                                                                                                                                                                    8 6 8 6
                                                                                                                                                                                                                                         8 6 8 6 8 6 8 6 8 6 8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8 6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  요
                                                                                                                                        δ
```

```
2289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2577
                                                                                                                                                                                           2229
                                                                                                                                                                                                                                                                                                                                                    2344 recaracaaarregreretrefeferecaagaacerecagagearádacearacaregareg 2403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                :::|||
2404 TCCGIGGITIGGATGCTIGGAAGTGAAGCA----ACAGAGATICCIGAGCCTACACCG 2457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   295
                                                                467
                                                                                                                                                     487
                                                                                                                                                                                                                                                                                                                                                                                                                542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----ThrAspTyrAspSerSerGln 582
                                                                                                                                                                            GlnIlevalArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArg
2050 ACTGAAGCTAACACAAGGAAGGTGGTGGGAACTTACGGCTACGGCTACTGTCTCCGGAGTACGCA
                                                                                         2518 GACGACGACGAATCCTGGACGGTGAACCAGTACACCTGCTCAGACATCGATGCCCGGTAG
                                                                     448 AlaSerGlyLysLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGlu
                                                                                                                                                     LeulleThrGlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuVal
                                                                                                                                                                                                                                      488 Asp-----TrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAsp-----
                                                                                                                                                                                                                                                                                                                           503 PheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                MetValAlaCysAlaAlaCysValArgHisSerAlaArgArgArgProArgMetSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ||||
|TACGA-AATCCGITGAGAAAGTTCAGATAATTAACTATTGGGGTGACGGATAT 2630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TyrasnGluaspMetLysLysPheargLysMetalaLeuGlyThrGlnGluTyr 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ProGlyGlnSerAsnValTyrSerSerTyrGlyGlySer-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2578
                                                                                                                                                                                                                                                                                                                                                                                                                  523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  583
```

earch completed: April 25, 2004, 01:02:38 ob time : 181 secs

Sequence 3 Sequence 3 Sequence 3

647

```
Command line parameters:
-MODEL=frame+-pl., model -DEV=xlp
-Q=/Cgn2 1/USPTO spool p/U310086464/runat_23042004_083017_5726/app_query.fasta_1.839.
-Q=/Cgn2 1/USPTO spool p/U310086464/runat_23042004_083017_5726/app_query.fasta_1.839.
-DB=Published Applications NA -QFNT=fasta_D -SUFFIX=rnpb -MINNATCH=0.1
-LOOPCL=0 -LOOPEXT=0 -UNITS=bits -START=1 -SND=-1 -MATRIX=blosum62
-TRANS=human40.cdi -LIST=45 -DOCALIGN=200 -THR SCORE=pct -THR MAX=100
-THR MIN=0 -ALIGN=15 -MODE=LOCAL -OUTFNT=pcto -NORM=ext -HEAPSTZE=500 -MINLEN=0
-MAXLEN=2000000000 -USER=US10086464 @CGN 1 1 333 @runat 23042004 083017_5726
-NCPU=S -ICPU=3 -NO MMAP -LAGREQUERY -NEG SCORES=0 -NITEADSTZE=500 -MINLEN=0
-LONGLOG -DEV TIMEOUT=120 -WARN TIMEOUT=30 -THREADSS 1 -XGAPPEXT=0.5
-FGAPOP=6 -FGĀPEXT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                                                                                                                                                                               April 25, 2004, 00:01:06; Search time 638 Seconds (without alignments) 4572.228 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Description
                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-086-464-2
3453
1 MSSAPSPGTGSPPSPPSNST.....REMEMGKIKRTGQGYSGPSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Published Applications NA:*

| cgn2_6/ptodata/1/pubpna/US07_PUBCOMB.seq:*
| cgn2_6/ptodata/1/pubpna/PCT NEW PUB.seq:*
| cgn2_6/ptodata/1/pubpna/PCT NEW PUB.seq:*
| cgn2_6/ptodata/1/pubpna/US06_PUBCOMB.seq:*
| cgn2_6/ptodata/1/pubpna/US06_PUBCOMB.seq:*
| cgn2_6/ptodata/1/pubpna/PCTUS_PUBCOMB.seq:*
| cgn2_6/ptodata/1/pubpna/US08_PUBCOMB.seq:*
| cgn2_6/ptodata/1/pubpna/US08_PUBCOMB.seq:*
| cgn2_6/ptodata/1/pubpna/US08_PUBCOMB.seq:*
| cgn2_6/ptodata/1/pubpna/US09_PUBCOMB.seq:*
| cgn2_6/ptodata/1/pubpna/US09_PUBCOMB.seq:*
| cgn2_6/ptodata/1/pubpna/US09_PUBCOMB.seq:*
| cgn2_6/ptodata/1/pubpna/US09_NEW_PUB.seq:*
| cgn2_6/ptodata/1/pubpna/US00_NEW_PUB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5815158
GenCore version 5.1.6
(c) 1993 - 2004 Compugen Ltd.
                                                                                                                                                                          - nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2907579 seqs, 2254313464 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.5
7.0
7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BLOSUM62
Xgapop 10.0 , Xgapext
Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query
Match Length DB
                                         Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Scoring table:
                                                                                                                                                                          OM protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Searched:
                                                                                                                                                                                                                                                            Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Result
```

JULY CARREL OF THE PROPERTY OF THE PRIOR APPLICATION US/10086464

| PUBLICATION NO. US20020199218A1
| GENERAL INFORMATION:
| APPLICANT: GORING.
| TITLE OF INVENTION: PROLINE-RICH EXTENSIN-LIKE RECEPTOR KINASES
| TITLE OF INVENTION: PROLINE-RICH EXTENSIN-LIKE RECEPTOR KINASES
| TITLE OF INVENTION: PROLINE-RICH EXTENSIN-LIKE RECEPTOR KINASES
| CURRENT PELICATION NUMBER: US/10/086,464
| CURRENT PELING DATE: 2002-02-19
| PRIOR APPLICATION NUMBER: US 10/069,304
| PRIOR PILING DATE: 1999-02-19
| PRIOR PILING DATE: 1999-08-19
| PRIOR APPLICATION NUMBER: US 60/149,466
| PRIOR APPLICATION NUMBER: US 60/149,466
| PRIOR APPLICATION NUMBER: US 60/149,466
| PRIOR APPLICATION NUMBER: US 60/159,122
| PRIOR PILING DATE: 1999-10-13
| NUMBER OF SEQ ID NOS: 27
| SOFTWARE: PATENTIN VET: 2.1
| SEQ ID NO 1
| LENGTH: 1944
| TYPE: DNA -10-086-464-1

Sequence 2326, Ap Sequence 33030, A Sequence 33031, A Sequence 9, Appli Sequence 917, Appli Sequence 117, Appli Sequence 1217, Appli Sequence 7339, Appli Sequence 6300, Appli Sequence 6400, Appli Sequence 1, Appli Sequence 1, Appli Sequence 1, Appli Sequence 1, Appli Sequence 1, Appli Sequence 1, Appli Sequence 1, Appli Sequence 1, Appli Sequence 1, Appli Sequence 1, Appli Sequence 1, Appli Sequence 1, Appli Sequence 25269, A Sequence 25269, A Sequence 25269, A Sequence 25328, A Sequence 12191, A Sequence 12314 Sequence 7549, Ap Sequence 12191, A Sequence 1211, A Sequence 1922, Ap Sequence 3465, Ap Sequence 3465, Ap Sequence 3455, Ap Sequence 13131, A Sequence 1079, Ap Sequence 1079 Sequence 25617, A Sequence 33063, A Sequence 5, Appli 1 US-10-086-464-1 1 US-10-086-464-3 3 US-10-425-114-3231 3 US-10-425-114-33031 3 US-10-425-114-33031 4 US-10-086-464-10 4 US-10-086-464-10 5 US-10-086-464-10 6 US-10-086-464-10 7 US-10-086-464-10 8 US-10-425-114-4313 9 US-10-425-114-4313 1 US-10-086-464-16 1 US-10-425-114-127 1 US-10-086-464-16 1 US-10-425-114-127 1 US-10-425-114-25269 1 US-10-425-114-25269 1 US-10-425-114-25269 1 US-10-425-114-12131 1 US-10-425-114-12131 1 US-10-425-114-12131 1 US-10-425-114-12131 1 US-10-425-114-12131 2 US-10-425-114-12131 2 US-10-425-114-12131 2 US-10-425-114-12131 2 US-10-425-114-12131 2 US-10-425-114-12131 2 US-10-425-114-12131 2 US-10-425-114-12131 2 US-10-425-114-3666 2 US-10-425-114-3666 2 US-10-425-114-3666 2 US-10-425-114-3666 2 US-10-425-114-3666 2 US-10-425-114-3666 2 US-10-425-114-3133 2 US-10-425-114-3133 2 US-10-425-114-3133 2 US-10-425-114-3133 2 US-10-425-114-3133 2 US-10-425-114-3133 2 US-10-425-114-3143 20194 20194 20194 20194 20195 20195 20196 1817 2025 3148 2284 2012 1011 3453 3453 2285.5 185.5 1833 1748.5 1748.5 1734.5 1687 1687 1687 1687 1687 1687 1687 1415.5 1415.5 1415.5 1339.9 1335.9 1233.5 1233.5 1233.5 1236.5 11116.5 819.5 816.5 816.5 811 811 802.5 1437

ALIGNMENTS

```
CCACGGCAACCTCCTCCACCTCCACCACGCCTTTCATGAGCAGCGGCGGCGGCTCCGAC
                                                                                                                                                                                                                 LeuGlyGlnGlyGlyPheGlyTyrValHislysGlyValLeuProSerGlyLysGluVal
                                                                                                                                                                                                                                                                                                                                                                                                                           GluIleIleSerArgValHisHisArgHisLevValSerLeuValGlyTyrCysIleAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TACTTGGCTCCGGAATACGCTGCAAGGGGAAAGCTCACGGAGAAGTCTGACGGTTTTCTCA
                            GGTCCCAAAGCCGGAGGACCTTACGGTGGACAGCAGCAACAATGGCGGCAACAAAAACGCA
                                                                                                                          SerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeu
                                                                                                                                                                                                                                                                                   AGCACTITCACATACGAGGAGCTAGCTAGAGCCACCAATGGTTTCTCCGAGGCGAACTIG
                                                                                                                                                                                                                                                                                                                                                                          301 AlavaliyeGinLeuLyeValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluVal
                                                                                                                                                                                                                                                                                                                                                                                         CATGGCGAGGGACGGCCTACAATGGAATGGAGCACCAGATTGAAGATTGCTCTTGGATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TyrvalAspAspSerLeuvalAspTrpAlaArgProLeuLeuAsnArgAlaSerGluGIn
            LysLysLysArgArgArgArgAspGluGluAspAlaTyrTyrValProProProProPro
                                                            GlyProLysAlaGlyGlyProTyrGlyGlyGlnGlnGlnGlnTrpArgGlnGlnAsnAla
                                                                                                              ThrProProSerAspHisValValThrSerLeuProProProProLysAlaProSerPro
                                                                                                                                                                  ProArgGlnProProProProProProProPheMetSerSerGlyGlySerAsp
                                                                                                                                                                                                                                                                                                                                      TTAGGACAAGGCGGGTTCGGTTACGTGCACAAAGGTGTGTTGCCTAGTGGGGAAAGAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLy81leAlaLeuGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaLysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAspIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITGGCGTTGTGCTTTTGGAGCTCATTACTGGACGTCGACCCGTTGATGCCAACAATGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LysAlaSerAsnIleLeuIleAspPheLysPheGluAlaLysValAlaAspPheGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AlaLysIleAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPheSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1477
            161
                                    577
                                                               181
                                                                                     637
                                                                                                                201
                                                                                                                                        697
                                                                                                                                                                 221
                                                                                                                                                                                         757
                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                            817
                                                                                                                                                                                                                                                                     261
                                                                                                                                                                                                                                                                                               877
                                                                                                                                                                                                                                                                                                                        281
                                                                                                                                                                                                                                                                                                                                                937
                                                                                                                                                                                                                                                                                                                                                                                                   997
                                                                                                                                                                                                                                                                                                                                                                                                                             321
                                                                                                                                                                                                                                                                                                                                                                                                                                                      1057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1597
                            පි
                                                            8 8
                                                                                                       8
                                                                                                                                ያ ያ
                                                                                                                                                                                 g
                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                     8 8
                                                                                                                                                                                                                                                                                                                                                                  ઠે
                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                             8 6 8 6 8 6 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8 6 8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProAlaProThrThrProGlySerProProAlaProValThrProProThrArghanPro 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ProProSerValProGlyProProSerAsnProSerArgGluGlyGlySerProArgFro 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProSerSerProSerProSerProSerSerAspGlyLeuSerThrGlyValValVal 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCACCACTCCTCCTCCAGCTTCCGCTCCTCCTCCCCACACACTTCTTCTCTCCCCCGCG 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCATCCACTATTCCGACATCTCCTCCTCCTCTCTCTCGCTCTACACCTTCTGCTCCTCTCT 276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ThrThrThrProProAlaSerAlaProProProThrThrProSerSerProPro 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ProSerThrIleProThrSerProProSerSerArgSerThrProSerAlaProPro 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCACCTTCAGTCCCAGGACCACCGTCCAATCCTTCACGCGAAGGAGGATCTCCTCGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MetSerSerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThr
                                                                                                    RECEPTOR KINASES
                                                                                                                                                                                                                                                                                                                                                                                                                           2189
647
0
0
0
                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                          JOSTIC CARGATORY OF SEQUENCE 3, Application US/10086464

| Publication No. US2020199218A1
| GENERAL INFORMATION:
| APPLICANT: GORING, Daphne R. et al.
| TITLE OF INVENTION: PROLINE-RICH EXTENSIN-LIKE RECF
| FILE REFERENCE: P 25,762-A USA
| CURRENT FILING DATE: 2002-02-19
| PRIOR PILING DATE: 2002-02-19
| PRIOR PILING DATE: 2002-02-19
| PRIOR PILING DATE: 2000-08-18
| PRIOR PILING DATE: 1999-08-19
| PRIOR PILING DATE: 1999-08-19
| PRIOR PILING DATE: 1999-08-19
| PRIOR PILING DATE: 1999-10-13
| PRIOR PILING DATE: 1999-10-13
| SOFTWARE: PATENTING DATE: 1999-10-13
| SOFTWARE: PATENTING DATE: 1999-10-13
| SOFTWARE: PATENTING DATE: 1999-10-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-086-464-2 (1-647) x US-10-086-464-3 (1-2189)
1921 GGTTATAGTGGACCTTCTCTT 1941
                                                                                                                                                                                                                                                                                                                                                                                                                             1.02e-215
3453.00
100.00%
100.00%
                                                                                                                                                                                                                                                                                                           TYPE: DNA
ORGANISM: Brassica napus
                                                                                                                                                                                                                                                                                                                                                ; NAME/KEY: CDS
; LOCATION: (1)..(2189)
; OTHER INFORMATION:
US-10-086-464-3
                                                                                                                                                                                                                                                                                                                                                                                                                                      Score:
Score:
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores:
                                                                                                                                                                                                                                                                                               LENGTH: 2189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       517
                                                                                                                                                                                                                                                                                                                                       FEATURE:
```

ઠે ద 6 8 6 8 6

g

6 8 6

ద

8 8

1176

360

1236

400

380

1116

340

1056

320

966

240

816

876 280 936 300

260

969

220

756

180 636 200 1356

420

1416

460

440

1476

1536

1596

```
1112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     755
                                                                                                                                                                                                                                                                                  872
                                                                                                                                                                                                                                                                                                                      932
                                                                                                                                                                                                                                                                                                                                                            992
                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                         321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        381
                                   108
                                                                       128
                                                                                          584
                                                                                                           148
                                                                                                                              644
                                                                                                                                                 167
                                                                                                                                                                    704
                                                                                                                                                                                     GluGluAspAlaTyrTyrValProProProProProPro---GlyProLysAlaGlyGly 186
                                                                                                                                                                                                                          206
                                                                                                                                                                                                                                                               ValValThrSerLeuProPro-----ProProLysAlaProSerProProArgGln 223
                                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                          261
                                                                                                                                                                                                                                                                                                                                                                                281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LysIleAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGlyTyr 441
                                                     524
               464
                                                                                                           ||||||::: :::||||||
grggtctcaatgatgcctccaaagccatcgctcaccgcttatggt
                                                                                                                                                                                                                                                                                                   TCAGGGGGGTGAATTTCTTCCTCCTCCTTCTCCAGGAATTTCATTGGGATTCTCTAAGAGC
                                                                                                                                                                                                                                                                                                                                                                               GlyGlnGlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLysGluValAla
                                                                                                                                                                                                                                                                                                                                                                                                                             LeuLeuVallleValThrLeuIleCysLeuLeuCys---LysLysLysArgArgArgAsp
                                                                                                                                                            187 ProTyrGlyGlyGlnGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAspHis
                                                                                                                                                                                                                                       SerAspArgProValLeuProProSerProGlyLeuValLeuGlyPheSerLysSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            322 IleIleSerArgValHisHisArgHisLeuValSerLeuValGlyTyrCysIleAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySerAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAspIleLys
SerProProProLeuProGlnProSerProProAlaProThrThrProGlySerProPro
                                   ----AlaProValThrProProThrArgAsnProProSerValProGlyProPro
                                                                         SerAsnProSerArgGluGlyGlySerProArgProProSerSerProSerProProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                          302
                                                                                                                                585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1413
71
                108
                                   91
                                                      165
                                                                         601
                                                                                           525
                                                                                                             129
                                                                                                                                                  149
                                                                                                                                                                    645
                                                                                                                                                                                       168
                                                                                                                                                                                                         705
                                                                                                                                                                                                                                               756
                                                                                                                                                                                                                                                                 207
                                                                                                                                                                                                                                                                                   813
                                                                                                                                                                                                                                                                                                                                           242
                                                                                                                                                                                                                                                                                                                                                             933
                                                                                                                                                                                                                                                                                                                                                                                                                    282
                                                                                                                                                                                                                                                                                                                                                                                                                                       1053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     422
                                                                                                                         8 8 8
                                                                                                                                                                                  $ B $
                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                             8 & 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                    8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                g
                                                                       ે
                                                                                      g
                                                                                                      ઠે
                                                                                                                                                                                                                                                              ઠ
                                                                                                                                                                                                                                                                             엄
                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               원 장
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
6 6 6
                                                                                                                                                                                                                                                              RESULT 3
US-10-424-599-95479
US-10-424-599-95479
Sequence 95479, Application US/10424599
Publication No. US20040031072A1
GENERAL INFORMATION:
APPLICANT: La Rosa Thomas J
APPLICANT: Kovalic David K
APPLICANT: And Yihua
APPLICANT: Cao Yongwei
TITLE OF INVENTION: Soy Nucleic Acid Molecules and Other Molecules Associated With
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
FILE REFERENCE: 38-21(53223)B
CURRENT APPLICANTION NUMBER: US/10/424,599
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 285684
SEQ ID NO 95479
                1716
                                                                                           1836
                                                                                                                                                                                      AGCCAGTACAATGAAGACATGAAGAAGTTTAGGAAAATGGCACTTGGAACTCAAGAGTAC 1896
                                                                                                                                                   620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerSerArgSerThrProSerAlaProProProSerProProThrProSerThrProGly 70
                                                                                      ATGAGACCAGGTCAAAGCAATGTATACAGCTCATACGGAGGAAGCACCGATTATGACTCG
                                                                                                                                                             AACGCCACGGGGGAGTACAGTAATCCGACCAGTGACTATGGACTGTACCCGTCTGGTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGGCGGGGACACCTTCTTCGCCACCTCCG-----TCAACTCCTTCCTCGCCCCCTCCG
AlaArgMetValAlaCysAlaAlaAlaAlaCysValArgHisSerAlaArgArgArgProArg
          GCTCGCATGGTTGCTTGTGTGCTTGTGTTCGCCATTCAGCTCGCCGCAGACCTCGC
                                  MetSerGlnIleValArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGly
                                              MetArgProGlyGlnSerAsnValTyrSerSerTyrGlySerThrAspTyrAspSer
                                                                                                            SerGlnTyrAsnGluAspMetLysLysPheArgLysMetAlaLeuGlyThrGlnGluTyr
                                                                                                                                                AsnAlaThrGlyGluTyrSerAsnProThrSerAspTyrGlyLeuTyrProSerGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----SerAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ProSerProProSerAsnSerThrThrThrThrProProAla-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2451
450
74
97
27
16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                x US-10-424-599-95479 (1-2451)
                                                                                                                                                                                                                                                                                                                                                                                                                                                        OTHER INFORMATION: Clone ID: PAT_MRT3847_57229C.1
                                                                                                                                                                                                                                              2017 GGTTATAGTGGACCTTCTCTT 2037
                                                                                                                                                                                                                            647
                                                                                                                                                                                                                            GlyTyrSerGlyProSerLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9e-140
2285.50
80.86%
69.44%
66.19%
                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: DNA ORGANISM: Glycine max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-086-464-2 (1-647)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; OTHER INFORMATIC
US-10-424-599-95479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Scores:
                1657
                                    541
                                                      1717
                                                                                           1777
                                                                                                                                                                    1897
                                                                                                                                                                                                         1957
                                                                         561
                                                                                                             581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         303
521
                                                                                                                                1837
                                                                                                                                                  601
                                                                                                                                                                                        621
                                                                                                                                                                                                                            641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ..
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   요
                             ે
                                                g
                                                                       8 6
                                                                                                     ò
                                                                                                                         8 6 8
                                                                                                                                                                                      Š
                                                                                                                                                                                                   ద
                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
```

ed. N ore: rcent st Lo ery M	O.: Simil cal Si atch:	rity: ilarit	.61e-113 870.00 9.85\$ 9.67\$ 4.16\$	Length: Matches: Conservat Mismatche Indels: Gaps:	1724 363 53 18 18 9	
0S-10-0	86-464	1-64	S	2326 (1-17		
<i>상</i> 염	139	valvalgly GTCGTGGGC		GlyvalAlaLeuLeuval ::: GCCTCGTGCTGCTGCTG		158
λ̈́δ	159	LeuCys	LysLysLy	ArgArgAspGluGl	uAspAlaTyrTyrValProPro	176
qa	61	recrercree	CAAGAAGCG	-8 -8	CTCAGCACTACGGATACCC	120
'n	177	roProP	roProGlyProLysA	laGlyGlyProTyrGly	GlyGlnGlnGlnGlnTrpArg	196
qq	121	- - - - - - - - - - - - - - -	ccgra	CATA	~	174
ò	ō	GlnGlnAsn	AlaThr	roProSerAspHi	Pro	21
Q Q	175	PAAAA	GCGCCTCCTGCTC	CACCCCTGAACA	ACCCITCGC	234
ò	Ä	ProProLy8	ProSer	roArgGlnProProPro	ProProProProP	m
Q	235	Ö	CATATGCCAATCGTC	CTCCACAG	CACCAGCGATGCT	294
ò i	34	SerSerSer	SerglyGlySe	SerAspTyrSerAspArgProValL	BrovalleuProProProSer	in i
Q Q	295	AATAGTAG1	TGGT	TAATTAC	TACCTCCACCATO	354
ò	252	ProGlyLeuValL	ValLeuGlyPheS	SerLysSerThrPheThr	LeuGlyPheSerLysSerThrPheThrTyrGluGluLeuAlaArgAla	271
QQ	355	ccrecrect	Grichiaderica	ccaacacattcacc	TACGAAGATTGTTGAGGGCT	414
ò	272	ThrAsnGlyPhe	aSe -	rGluAlaAsnLeuLeuGlyGlnGly	nGlyGlyPheGlyTyrValHisLys	291
QQ	415	ACTGATGGA	- P	Arcretregacaage	GCTATGTTCA	474
à	292	GlyValLeuP	roSerGlyLy	luValAlaValLys	SGlnLeuLyBValGlySerGlyGln	311
dO .	475	GGATTGCTG	TAATGGCAA	AGATTGCTGTAAA	TGGGAAGTGGCCA	534
ò	312	GlyGluArg	GluPheGlnAlaG	uArgGluPheGlnAlaGluValGluIleIleSer	leSerArgValHisHisArgHisLeu	331
οqα	535	-8 -8	GAGTTCCAGGCTC	AGGTTGAGATTATCAGC	AAACACCT	594
ò	332	ValSerLeu	ValGlyTyrCysI	ValSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuValTyrGl	JreureuValTyrGluPheVal	351
οp	595	GTGTCTTTG	GTTGGCTATTGCA	ATTTCTGGAGGCAAGAGG	Grrigi	654
ò	352	ProAsnAsn	AsnLeuGluLeuH	roAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGly.	.yArgProThrMetGluTrpSer	371
QQ	655	CCCAATAAC	acatriggaartc	ACTTACATGCGAAAGAT	cgaccaacaargga	714
ò	372	ThrArgLeuLyslle	LysileAlaLeuGlySerAla	- iai –	ysglyLeuSerTyrLeuHisgluAspCys	391
qq	715	GCTAGATTA	AAGATCAGTTTGG	-Z	TCATGAAGACTG	774
ò	392	AsnProLysile	[E]	eHisArgAspIleLysAlaSerAsn	nolleLeulleAspPheLysPhe	411
οp	775		-F	- 	TIGACTICCAATT	834
ò	412	GluAlaLys	uAlaLysValAlaAspPheGlyLeuAlaLy	E -	eAlaSerAspThrAsnThrHisVal	431
Dp	835	GAAGCTAAG	GTTGCTGATTTTG	-6	acaacaccargr	894
à	432	SerThrArg	rgValMetGlyThrP	VThrPheGlyTyrLeuAlaProGl	oGluTyrAlaAlaSerGlyLys	451
qa	895	CGACA	-9 -95	TTGGGTATTTGGCACCT	GTATGCATCTTCTGGCAA	954

Best Local Similarity: 69.80\$ Mismatches: 85 Query Match: 53.08\$ Indels: 18 DB: Gaps: 9 US-10-086-464-2 (1-647) x US-10-425-114-33030 (1-2880)	euValile\ ::::::: rGCrGCrC	Oy 168 GluGluAspAlaTyrTyrValProProProProProClyProLysAlaGlyGlyPro 1	188	Db 1255 TATGGTGGAACGTACCAGGAGTTGGCAGCAAAATGCGCCTCCTGCTCCACCCCTGAA 1 Qy 206 HisValValThrSerLeuProProProProLysAlaProSerProProArgGlnPro 2	Db 1312 CATGTGGTCAAGATGCACCCTTCGCCTCCGCCAGCATATGCCAATCGTCCTCCACAGCGG 325 DrobrobrobrobrobrobaMatSatGlvGlvSatAgnTvtSat 2	1372	Qy 243 AspargProValLeuProProBroSerProGlyLeuValLeuGlyPheSerLysSerThr 2 :::		Db 1492 TTCACCTACGAAGAGCTGTTGAGGGCTACTGATGGATTCTCGGATGCTAATCTCTTGGA 1 Qy 283 GlnGlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLysGluValAlaVal 3	1552	Qy 303 LysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIle 3	Qy 323 IleSerArgValHisHisHargHisLeuValSerLeuValGlyTyrCysIleAlaGlyAla 3	1672	Db 1732 AAGAGGGTGCTTGTCTATGAGTTTGTCCCCAATAACACATTGGAATTCCACTTACATGGG 1 Qy 363 GluGlyArgProThrMetGluTrpSerThrArgLeuLyglleAlaLeuGlySerAlaLys 3	Db 1792 AAAGGTCGACCAACAATAGGAGTGGCCTGCTAGATTAAAGATCAGTTTGGGTGCTGCCAAG	Oy 383 GlyLeuSerTyzLeuHisGluAspCysAsnProLysIleIleHisArgAspIleLysAla 4	Oy 403 SerAsnileLeuileAspPheLysPheGluAlaLysValAlaAspPheGlyLeuAlaLys 4	Oy 423 IleAlaSerAspThrAsnThrHieValSerThrArgValMetGlyThrPheGlyTyrLeu 4 :::	443 AlaProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPheSerPheGl 	463 ValvalleuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnNell
Oy 452 LeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThrGly 471		1075 CCATTACTGATGCGAGCACTTGAGGATGATATGATGCTTTAGTGGATCCTCGGCTG	OY SIZ ABIMBIGLYIYIABDAIGGIUGEUNECAIGAIGGEOAGAIAIGASBAIGAIGGEOAGAIGAIG	Oy 532 ArgHisSerAlaArgArgProArgMetSerGlnIleValArgAlaLeuGluGlyAsn 551	Qy 552 ValSerLeuSerAspleudsnGluGlyMetArgProGlyGlnSerAsnValTyrSerSer 571 1	572 TyrGlyGlySerThrAspTyrAspSerSerGlnTyrAspMetLysLysDygPheArg	Db 1315 TACAGCAGCTCCGATTACGATTCTGGCCAGTACAACGAGGACATGAAGAAGTTCAAG 1371 Qy 592 LygMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnProThrSer 611	1372 AAGATGGCATTCAACAACAACTATACCAGCGCCAATACAGGGCGCCAACAGT	Qy 612 AspTyrGlyLeuTyrProSerGlySerSerSerGluGlyGlnThrThrArgGluMetGlu 631 1426 GAATATGGACAGATCTGCATCAAGCAGCGACGACCACAGAGGACAGGAGTAGGAG 1485	632 MetGlyLysIleLysArgThrGlyGlnGlyTyrSerGlyPro 645	Db 1486 TCGGGTGCAATGAAGAAAGGTGGCTACAGTGGCTACAGCTCAGGATACAGCGGAGCC 1545 Qy 646 Şer 646	Db 1546 TCG 1548	RESULT 5 US-10-425-114-33030 ; Sequence 33030, Application US/10425114 ; Publication No. US20040034888A1	; GENERAL INFORMATION: ; APPLICANT: Liu, Jingdong ; APPLICANT: Zhou, Yihua	; APPLICANT: Kovalic, David K. ; APPLICANT: Screen, Steven B	APPLICANT: Tabaska, Jack E ; APPLICANT: Tabaska, Jack E ; APPLICANT: Cao, Yongwar Acid Molecules and Other Molecules Associated With ; TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement	; FILE REFRENCE: 38-21(53313)B ; CURRENT APPLICATION NUMBER: US/10/425,114 ; CURRENT FILING DATE: 2003-04-28 ; NUMBER OF SEQ ID NOS: 73128	; SEQ ID NO 33030 ; LENGTH: 2880 ; TYPE: DNA ; OPCANIEW, 700 mayor	FEATURE: CHER INFORMATION: Clone ID: UC-ZMFLMO17055B11_FLI US-10-425-114-33030	Alignment Scores: 2.75e-110 Length: 2880 Pred. No.: 2.75e-110 Matches: 356 Score: 1833.00 Matches: 356 Percent Similarity: 79.80% Conservative: 51

May

Thu

```
1139
                                              1199
                                                                                                                                                       1373
                                                                                                                                                                                                                                                                                                                                                                           1733
                                                                                                                                                                                                                                                                                                                                                                                                              1793
                                                                188
                                                                                                                    1313
                                                                                                                                                                                                            263
                                                                                                                                                                                                                              1493
                                                                                                                                                                                                                                                 283
                                                                                                                                                                                                                                                                  1553
                                                                                                                                                                                                                                                                                    303
                                                                                                                                                                                                                                                                                                                       323
                                                                                                                                                                                                                                                                                                                                                          343
                                                                                                                                                                                                                                                                                                                                                                                             363
                                                                                                                                                                                                                                                                                                                                                                                                                                 383
                                                                                                                                                                                                                                                                                                                                                                                                                                                  1853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     503
                     8 6 6 6
                                                                                                              유
                                                                                                                                                 셤
                                                                                                                                                                       8 8 8
                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                              8 8
                                                                                                                                                                                                                                                                           ઠે
                                                                                                                                                                                                                                                                                               성 암
                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                 ઠે
                                                                                                                              ૪
                                                                                                                                                                                                                                                                                                                                                   8 6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                         ठे
                                                                                                                                                                                                                                                                                                                                                                                                                                           8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               යු
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ⋧
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                     Sequence 3301, Application US/10425114
Sequence 3301, Application US/10425114
Publication No. US2004003488A1
GENERAL INFORMATION:
GENERAL TOWN.
Japping APPLICANT: Zhou, Yihua
APPLICANT: Zhou, Xihua
APPLICANT: Screen, Steven E
APPLICANT: Tabaska, Jack E
APPLICANT: Tabaska, Jack E
APPLICANT: Tabaska, Jack E
APPLICANT: Tabaska, Jack E
APPLICANT: Japping Wei
TITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associated With
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
FILE REFERENCE: 38-21(53313)B
CURRENT APPLICATION NUMBER: US/10/425,114
CURRENT FILING DATE: 2003-04-28
                                                                                                                                                                                                                                               2562
                                                              2271
                                                                                                   2331
                                                                                                                                     2391
                                                                                                                                                                                                                                                                            ||||||||
GAGGGCCACCAGACGCAGGAGATGGAGTGCGATGAAGAAAGGTGGCTACAGTGGT 2622
                                                                                 542
                                                                                                                                                                                                                                                                  639
                                                                                                                    562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            150 LeuVallleValThrLeuIleCysLeuLeuCys-----LysLysLysArgArgAsp 167
                                                                                                                                                                                                                            TATGATGCTTTAGTGGATCCTCGGCTGGGAAGGACTTCAATCTAATGAGATGGCAAGA
                                                                               GlnIleValArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArg
                                                                                                                                     CAGGTCGTTCGGGCCTTTGGAGGGCCAATGTGTCTTTGGAGGACCTTAATGAAGGTGTTCGG
                                                                                                                                                      ProGlyGlnSerAsnValTyrSerSerTyrGlyGlySerThrAspTyrAspSerSerGln |||||| ||| ||| ||| ||| ||| |||
                                                                                                                                                                  TyrAsnGluAspMetLysLysPheArgLysMetAlaLeuGlyThrGlnGluTyrAsnAla
                                                                                                                                                                                                     AspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAsp
                                            PheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArg
                                                                                                                                                                                                                                                                 GluGlyGlnThrThrArgGluMetGluMetGlyLysIleLysArgThrGly-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2881
356
51
85
18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-086-464-2 (1-647) x US-10-425-114-33031 (1-2881)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         , OTHER INFORMATION: Clone ID: UC-ZMFLMO17055B12_US-10-425-114-33031
                                                                                                                                                                                                                                                                                                     640 -----GlnGlyTyrSerGlyProSer 646
                                                                                                                                                                                                                                                                                                                   GGCTACAGCTCAGGATACAGCGGAGCCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2.75e-110
1833.00
79.80%
69.80%
53.08%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: DNA
ORGANISM: Zea mays
                                                                                                                                                                                                                                                                                                                                        RESULT 6
US-10-425-114-33031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQ ID NO 33031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment Scores:
                           2152
                                             503
                                                              2212
                                                                                                  2272
                                                                                                                                     2332
                                                                                                                                                                                                            2449
                                                                                                                                                                                                                                               2503
                                                                                 523
                                                                                                                                                        563
                                                                                                                                                                         2392
                                                                                                                                                                                                                                                                                   2563
           483
                                                                                                                    543
                                                                                                                                                                                                                              603
                                                                                                                                                                                           583
                                                                                                                                                                                                                                                                 623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURE:
                      a
                                            ઠ
                                                        g
                                                                        8 6 6 6
                                                                                                                                                 8 6 8 6
                                                                                                                                                                                                                         8 6
                                                                                                                                                                                                                                                          8 8
                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
```

1312 1372 1432 1492 1552 1612 1672 1852 1912 1972 2032 2092 2152 ABGAGGCTGCTTGTCTATGAGTTTGTCCCCAATAACACATTGGAATTCCACTTACATGCG 1792 GATGACAGCTTGGTTGACTGGGCAAAGGCCATTACTGATGCGAGCACTTGAGGATGGTGAA 2212 382 402 422 442 462 482 502 522 242 262 282 302 | IleSerArgValHi8Hi8ArgHi8LeuValSerLeuValG1yTyrCysIleAlaG1yAla 342 LysArgLeuLeuValTyrGluPheValProAsnAsnAsnLeuGluLeuHisLeuHisGly 362 LysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIle TTCACTACTGATAACAACACCCCATGTTTCGACAAGAGTAATGGGCACCTTTGGGTATTTG AspAspSerLeuValAspTrpAlaArgProLeuLeuAspArgAlaSerGluGlnGlyAsp PheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArg TyrGlyGlyGlnGlnGlnGlnTrpArgGlnGlnAsnAla-----ThrProProSerAsp GlnGlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLysGluValAlaVal GluglyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySerAlaLys GlybeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAspIleLysAla SerAsnIleLeuIleAspPheLysPheGluAlaLysValAlaAspPheGlyLeuAlaLys TCTAACATTCTTCACTTCCAATTTGAGCTAAGGTTGCTGACTTTGGACTAGGAAG 423 IleAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeu GluGluAspAlaTyrTyrValProProProProProProGlyProLysAlaGlyGlyPro 206 HisValValThrSerLeuPro---ProProLysAlaProSerProProArgGlnPro 225 ProProProProProProPheMetSerSerSerGly-----GlySerAspTyrSer PheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGly TTCACCTACGAAGAGCTGTTGAGGGCTACTGATGGATTCTCGGATGCTAATCTCCTTGGA ValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnValTyrVal

```
749 TTCTTCCATGTACTCAGGCCCATCACGCCCAGTTTTACCTCCTCCTTCGCCTGCTTTAGC 808
                                                                             Alignment Scores:
                             LENGTH: 1939
                                                                                                                                                                                                                  23
                                                                                                                                                                                                                                                                                             63
                                                                                                                                                                                                                                                                                                                207
                                                                                                                                                                                                                                                                                                                                   83
                                                                                                                                                                                                                                                                                                                                                                          103
                                                                                                                                                                                                                                                                                                                                                                                             324
                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                  375
                                                                                                                                                                                                                                                                                                                                                                                                                                                     133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   222
                                                                                                                           Query Match:
DB:
                                                                                       ..
02
                                                                                       Pred
                                                                                                                                                                                         g
                                                                                                                                                                                                                                6
                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                           ઠે
                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                       ⋧
                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                   | :::||||||| ::: || GTCGAGTCAGTCAGTGAAGAACATCTAGTAATGATTCTAGAG 1868
                                      rgar---Aatagcatcaccatggacgacaccttagtagatrgggctcggccrcttatggc 1508
                                                                                                                                                                                                                                                                                                                                                                                                     1689 TGCTTTAAACGAAGGTGTGAAGCCAGGACACAGTAACGTTTACGGGTCATTGGGAGCAAG 1748
|||||| |||||||||||||||||:::
TTTGGAATATCATCTTCATGGGAAAAATCTTCCGGTAATGGAGTTCTCCACTAGGTTGCG 1151
                                                                                                         435
                                                                                                                                                                                    sSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThrGlyArgArgProVa 475
                                                                                                                                                                                                                          aArgArgArgProArgMetSerGInIleValArgAlaLeuGluGlyAsnValSerLeuSe 555
                                                                                                                                                                                                                                                                                                                                                                                                                                                               612
                                                                             sllehlaleuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIl
                                                                 elleHisArgAsplleLysAlaSerAsnlleLeulleAspPheLysPheGluAlaLysVa
                                                                                                         1AlaAspPheGlyLeuAlaLysIleAlaSerAspThrAsnThrHisValSerThrArgVa
                                                                                                                                                                                                                                                                                                       rAspArgGluGluMetAlaArgMetValAlaCysAlaAlaAlaCysValArgHisSerAl
                                                                                                                                                                                                                                                                                                                                                                                 | rAspLeuAsnGluGlyMetArgProGlyGlnSerAsnValTyrSerSerTyrGlyGlySe
                                                                                                                                                                                                                                                                                                                                                                                                                         rThrAspTyrAspSerSerGlnTyrAsnGluAspMetLysLysDyaPheArgLysMetAlaLe
                                                                                                                                                                                                                                                                nArgAlaSerGluGluGlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTy
                                                                                                                                                                                                                                                                                                                                                                                                                                                              uGlyThrGlnGluTyr-----AsnAlaThrGlyGluTyrSerAsnProThrSerAs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOSTIC CONTRIBUTION NUMBER: US APPLICATION NUMBER: PUBLICATION NO. US20020199218A1

GENERAL INFORMATION:
GENERAL INFORMATION:
TITLE OF INVERMIC, Daphne R. et al.
TITLE OF INVERMICS, Daphne R. et al.
TITLE OF INVERMICS: P 25,762-A USA
CURRENT APPLICATION NUMBER: US/10/086,464

CURRENT FILING DATE: 2002-02-8

PRIOR APPLICATION NUMBER: PCT/CA00/00966

PRIOR APPLICATION NUMBER: PCT/CA00/00966

PRIOR PILING DATE: 1999-08-18

PRIOR APPLICATION NUMBER: US 60/149,466

PRIOR APPLICATION NUMBER: US 60/159,122

PRIOR PILING DATE: 1999-08-19

PRIOR FILING DATE: 1999-08-19

PRIOR FILING DATE: 1999-10-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1869 TATGGGA 1875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    pTyrGly 614
                                                                                                         415
                                                                                                                                              435
          1092
                                               1152
                                                                                      1212
                                                                                                                                                                                                                           475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1809
                                                                                                                           1272
                                                                                                                                                                 1332
                                                                                                                                                                                                       1392
                                                                                                                                                                                                                                              1452
                                                                                                                                                                                                                                                                                    1509
                                                                                                                                                                                                                                                                                                                          1569
                                                                                                                                                                                                                                                                                                                                                                1629
                                                                                                                                                                                                                                                                                                                                                                                                                                            1749
                             375
                                                                  395
                                                                                                                                                                                    455
                                                                                                                                                                                                                                                                495
                                                                                                                                                                                                                                                                                                       515
                                                                                                                                                                                                                                                                                                                                                                                   555
                                                                                                                                                                                                                                                                                                                                                                                                                         575
                                                                                                                                                                                                                                                                                                                                                                                                                                                               595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     612
                           8 6 6 6
                                                                                                                   음 장
                                                                                                                                                           6 6 6 6
                                                                                                                                                                                                                                        8 & 8
8
                                                                                                                                                                                                                                                                                                8 8 8
                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                 g &
                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
          용
                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                  ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8 8
```

```
146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GACTCATCATCATCGCCACCTCCTGATTCCACATCTCCACAGCTCCACAAGCTCCTAAAC 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            146 GlyvalAlaLeuLeuValIleValThrLeuIleCysLeuLeuCysLysLysLysArgArg 165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -GlySerAspTyrSer----AspArgProValLeuProProProSerProGlyLeuVa 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProSer-----SerSerProSerProSerProSerPro----SerSerAsp 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ArgAspGluGluAspAlaTyrTyrValProProProProProGlyProLysAlaGly 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              186 GlyProTyrGlyGlyGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAsp 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62
                                                                                                                                                                                                                                                                                                                                          22
                                                                                                                                                                                                                                                                                                                                                                             95
                                                                                                                                                                                                                                                                                                                                                                                                                  42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 82
                                                                                                                                                                                                                                                                                                                                                                                                                                       ThrProProProAlaSerAlaProProProThrThrProSerSerProProProPer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ThrileProThrSerProProSerSerArgSerThrProSerAlaProProProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCT------CCTCCTTCTAGGAGTAATGGAGATAATGGTGGTAGCAGATCATCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTGGACTTTTGATGATGATCTTTATTATTGTGTGTCTTAGACGCAAAAAGAAGAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----TTATCCGAATTGGCACCTAAATTCACAAGGCCAAAACCAACAATCTACTGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTGGGGAGGCGGTGGACCATCACCGCCTCCTCCGCGGATGCCTACAAGCGGAAAGA
                                                                                                                                                                                                                                                                                                                                        SerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThrThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProProThrProSerThrProGlySerProProProLeuProGlnProSerProProAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ProThrThrProGlySerProProAlaProValThrProProThrArgAsnProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerValProGlyProProSerAsnProSerArgGluGlyGlySerProArg-----Pro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   585 AACCAATAT-----CAATACTA-TGGAAACAACAACAACAACAATGCTTCACAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HisValValThrSerLeuProProProLysAlaProSerProPro------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----ArgGln-ProProProProProProProProPheMetSerSerGly
                                                                                                                                                                   1939
367
81
141
55
                                                                                                                                                                   Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                   US-10-086-464-2 (1-647) x US-10-086-464-9 (1-1939)
                                                                         TYPE: DNA; Arabidopsis thaliana
GRANISM: Arabidopsis thaliana
US-10-086-464-9
                                                                                                                                                                   5.86e-105
1748.50
69.67%
57.08%
50.64%
                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
NUMBER OF SEQ ID NO
SOFTWARE: Patentin
SEQ ID NO 9
```

8 a

8 6 ∂ 8 6 8

8 6 8 6

ò 요 상

```
Sequence 9117, Application US/10425114

Sequence 9117, Application US/2004003488A1

GENERAL INFORMATION:
APPLICANT: Liu, Jingdong
APPLICANT: Zhou, Yihua
APPLICANT: Screen, Steven E
APPLICANT: Gao, Yongwei
TITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associated With
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
FILE REFERENCE: 38-21(53313)B
CURRENT APPLICATION NUMBER: US/10/425,114
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 73128
SEQ ID NOS: 73128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ArgleuLeuValTyrGluPheValProAsnAsnAsnLeuGluLeuHisGlyGlu 363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LeuSerTyrLeuHisGluAspCysAsnProLys1leIleHisArgAspIleLysAlaSer 403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlnLeuLy8ValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               364 GlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySerAlaLysGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              226 ProProProProProPheMetSerSerSerGly-----GlySerAspTyrSerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLysGluValAlaValLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGAGGATTTGGATATGTGCACAGAGGAATTCTTCCCAACGGCAAGGAGGTGGCAGTGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SerArgValHisHisArgHisLeuValSerLeuValGlyTyrCysIleAlaGlyAlaLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGGAGACCTACCATGGATTGGCCCACAAGACTAAGAATTGCTTTAGGATCTGCTAAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCCCACCACCGCCTCCTTTCATCAGCAGCAGTGGGGATCTGGATCAAACAATTCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                             1424
331
47
41
7
                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-086-464-2 (1-647) x US-10-425-114-9117 (1-1424)
                                                                                                                                                                                                                                                                                                                                                                                    OTHER INFORMATION: Clone ID: 700833950
                                                                                                                                                                                                                                                                                                                                                                                                                                              2.26e-104
1737.50
88.73%
77.70%
50.32%
                             TATGGGA 1892
614
                                                                                                                                                                                                                                                                                                                                                           max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity:
pTyrGly
                                                                                                                                                                                                                                                                                                                                           TYPE: DNA
ORGANISM: Glycine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
Best Local Similari
                                                                                                                                                                                                                                                                                                                                                                                        ; OTHER 111-9117
US-10-425-114-9117
                                                                                                                                                                                                                                                                                                                                                                                                                                  Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                                                                                              LENGTH: 1424
612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                         FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                   1348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTTTCAAGCTGAGGTCGATATCATTAGCCGTGTGCATCATCGGTATCTTGTTTCTTTGGT 1048
                                                                                                                                                                                                                                                                                                                                           1109 TTTGGAATATCATCTTCATGGGAAAATCTTCCGGTAATGGAGTTCTCCACTAGGTTGCG 1168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCGTAAACGTCCAAAGGTGAGCCAGATAGTAAGAGCGTTAGAAGGAGAAGTGTCCTTAGA 1705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | :::||||||| ::: | GTCGAGTCAGTCAGTGAAGAACATCTAGTAATGATTCTAGAGA 1885
                                                                                                                                                                                                                                                                                                                                                                                                                                   415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      455
                                                                                                                                                                                          uPheGlnAlaGluValGluIleIleSerArgValHisHisArgHisLeuValSerLeuVa 335
                                                                                                                                                                                                                                                                                                                                                                       sileAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIl 395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          rAspArgGluGluMetAlaArgMetValAlaCysAlaAlaAlaCysValArgHisSerAl 535
                                                                                                     928
                                                                                                                                   315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            lalaasppheGlyLeualaLysIlealaSeraspThrasnThrHisValSerThrArgVa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | IMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GATGGGAACTTTCGGATATCTAGCTCCAGAATATGCTTCAAGGCGGTAAATTAACCGAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThrGlyArgArgProVa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      rThraspTyrAspSerSerGlnTyrAspGluAspMetLysLysPheArgLysMetAlaLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        lleuGlyPheSerLysSerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPh
                                CCTCGGATTCAACAAGAGCACTTTTACTTACCAAGAGGCTTGCGGCTGCAACAGGAGGGTT
                                                                        nLeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLy
                                                                                                                                                                                                                                                                                                                                                                                        elleHisArgAspileLysAlaSerAsnileLeulleAspPheLysPheGluAlaLysVa
                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGCTGATTTTTGGATTAGCTAAGTTAACATCTGATAACAACACTCATGTATCTACTCCGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Arcceargriricicriracesagirargrirarigeaacriraraacresaaaccaccegr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 nArgAlaSerGluGlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      caaccegcaadaardecregaardergacrigiecegcregragearregrearrege
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     aArgArgArgProArgMetSerGlnIleValArgAlaLeuGluGlyAsnValSerLeuSe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                uGlyThrGlnGluTyr-----AsnAlaThrGlyGluTyrSerAsnProThrSerAs
                                                                                                                                   oSerGlyLysGluValAlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGl
                                                                                                                                                               929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1586
                                                                                                                                                                                                                         989
                                                                                                                                                                                                                                                                                                                355
                                                                                                                                                                                                                                                                                                                                                                       375
                                                                                                                                                                                                                                                                                                                                                                                                      1169
                                                                                                                                                                                                                                                                                                                                                                                                                                                               1229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      535
                                                                                                                                                                                            315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1766
                                                                        275
                                                                                                                                   295
                                                                                                                                                                                                                                                                                                                                                                                                                                   395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   595
```

QQ

8 8 ઠે

8 8 8

8 6 6 6

ò g ò 셤 ò 셤 ò

243

263 131 283

71

323

311

303

251

191

343

371

383

491

```
; SOFTWARE: Patentin Ver. 2; SEQ ID NO 13; LENGTH: 2025; TYPE: DNA
                                                  ; FEATURE:
; NAME/KEY: CDS
; LOCATION: (1)..(2025)
US-10-086-464-13
                                                                                                                    rercent Similarity;
Best Local Similarity: ;
Query Match:
DB:
                                                                                                     Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                  21
                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                       175
                                                                                                                                                                                                                                                                                                                                                                          26
                                                                                                                                                                                                                                                                                                                                                                                               235
                                                                                                                                                                                                                                                                                                                                                                                                                    82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         628
                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                          ð
                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                         임
                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                  1031
                                                                                                                                                                                                                                                                                                                                                                  1089 AAGGAAGACATGAAAAAGTTCAGGAAAATGGCATTGGGAACTCAGGAGTATGGTGCAAG 1148
                                                                                                                                                                                                                                                                                                                                                                                                                                                  1209 GCACAGAGCCGCCAAACCACAGGGAAATGGAAATGGAAAAGATGAAGAAGATGAAGAAAGATGAA 1265
                                                                                                                                                                                                                                                                                                                                                       583
                                                                                                                                                                                                                                                                                                                                                                                                                                     GlyGluTyrSerAsnProThrSerAspTyrGlyLeuTyrProSerGlySerSerSerGlu 623
                                                             443
                                                                               671
                                                                                                     463
                                                                                                                                           ValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnValTyrValAsp 483
                                                                                                                                                                                      503
                                                                                                                                                                                                                              523
                                                                                                                                                                                                                                                   911
                                                                                                                                                                                                                                                                     ValAlaCysAlaAlaAlaCysValArgHisSerAlaArgArgArgProArgMetSerGln 543
                                                                                                                                                                                                                                                                                          971
                                                                                                                                                                                                                                                                                                             544 IleValArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgPro 563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gly------GlnThrThrArgGluMetGluMetGlybysIleLysArgThrGlyGln 640
                                                                                                                        731
                                                                                                                                                                 791
                                                                                                                                                                                                          851
                    ABNI1eLeuIleAspPheLysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIle
                                :::|||||||
rctrctgaigtcaiacccaigtitctactccgagigaigggactitigggiaitiggc
                                                                                                    ProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPheSerPheGlyVal
                                                                                                               CCAGAATATGCTTCTAGTGGAAAACTCACAGACAAAATCAGAATGTTTTCTCCTATGGAATC
                                                                                                                                                        GlyGlnSerAsnValTyrSerSerTyrGlyGlySerThrAspTyrAspSerSerGlnTyr
                                                                                                                                                                                                                                                                                                                                                                                               584 AsnGluAspMetLysLysPheArgLysMetAlaLeuGlyThrGlnGluTyrAsnAlaThr
 AlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAla
                                                                                                                                                                                     AspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPhe
                                                                                                                                                                                                GATAGTTTGGTAGATTGGGCTAGGCCTTTGCTCACACGAGCTTTGGAAGAGGATGATTTT
                                                                                                                                                                                                                             GluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: GORING, Daphne R. et al.
TITLE OF INVENTION: PROLINE-RICH EXTENSIN-LIKE RECEPTOR KINASES
FILE REFERENCE: P 25,762-A USA
FILE REFERENCE: P 25,762-A USA
CURRENT PELING DATE: 2002-02-28
PRIOR PLILING DATE: 2002-02-19
PRIOR PLILING DATE: 2000-08-18
PRIOR PLILING DATE: 2000-08-18
PRIOR PLILING DATE: 2000-08-18
PRIOR PLILING DATE: 1999-08-19
PRIOR FILING DATE: 1999-08-19
PRIOR FILING DATE: 1999-10-13
NUMBER OF SEQ ID NOS: 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-086-464-13; Application US/10086464; Sequence 13, Application US/20020199218A1; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1266 GGTTTCAGTGGAAGTTCT 1283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlyTyrSerGlyProSer 646
 492
                    404
                                        552
                                                                               612
                                                                                                                        672
                                                                                                                                             464
                                                                                                                                                                 732
                                                                                                                                                                                                                             504
                                                                                                                                                                                                                                                  852
                                                                                                                                                                                                                                                                      524
                                                                                                                                                                                                                                                                                          912
                                                                                                                                                                                                                                                                                                                                 972
                                                                                                                                                                                                                                                                                                                                                       564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               624
                                                            424
                                                                                                     444
                                                                                                                                                                                     484
                                                                                                                                                                                                          792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        641
                    ò
                                    셤
                                                    8
                                                                         셤
                                                                                                    8 8
                                                                                                                                    8
                                                                                                                                                        ብ ራ
                                                                                                                                                                                                 8 è
                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                   음 장
                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      유
```

```
116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SerProArgProProSerProSerProSerProSerProSerPapGlyLeuSerThr 136
                                                                                                                                                                                                                                                                                                                                                                                                    3 TCG------CCGTCTAATGAGTCATCGCCGCCAACACCACCTTCTTCACCACCACCA 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GIAGCTAATCCGTCACGCAGACTCCAGAGAATCCTTCTCCACCTGCACCTGAAGGCTCA 294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        124 TCATCA-----ATATCTGCTCCTCCGCCAGATATCTCCGCTTCTTTTCACCGCCG 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----Tyr 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TACAATAACAATCCTTATGGAGGAGCACCCTCAGGTAATGGTGGTTATTACAAGGGA--- 684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAspHisValValThrSerLeu 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TyrvalProProProProProProGlyProLysAla---GlyGlyProTyrGlyGlyGln 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             212 ProProProProLysAlaProSerProProArgGlnProProProProProProPro 231
                                                                                                                                                                                                                                                                                                                                                                            40
                                                                                                                                                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        84
                                                                                                                                                                                                                                                                                                                                       72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ThrProGlySerProProAla --- ProValThrPro----- - ProThrArgAsn 99
                                                                                                                                                                                                                                                                                                                       -------ACACCTCAAGATCATGTGGTG---AATATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ------ProGln-----ThroSerProProAlaPro----Thr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                355 ACTCCTCCTCCTGCTGCCAATGATGACCGAAACAGAACCAATGGCGGAAACAACAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlyValValValGlyIleAlaIleGlyGlyValAlaLeuLeuValIleValThrLeuIle
                                                                                                                                                                                                                                                                                                                                                                            ThrThrThrProProProAlaSerAlaProProProThrThrProSerSerProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProSerThr1leProThrSerProProSerSerArgSerThrProSerAlaProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----SerValProGlyProProSerAsnProSerArg------GluGlyGly
                                                                                                                                                                                                                                                                                                    MetSerSerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CysleuleuCyslyslysArgArgArgAspGluGluAspAla----
                                                                                                                           2025
368
87
142
114
25
                                                                                                                                               Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                              US-10-086-464-2 (1-647) x US-10-086-464-13 (1-2025)
                                                                                                                               Length:
thaliana
                                                                                                                             6.08e-101
1687.00
63.99%
51.76%
48.86%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100 ProProPro-----
```

```
|||:::|||:::||||||
1888 TTCAAGAAACTGGCGTTAGAGAATAAAGAATATCAAAGCAGT---GAATATGGTGGA--- 1941
1768 GGAGATATGTCAATGGATGATCTAAGTGAGGGAACAAGACCAGGACAAAGCACGTACTTG 1827
                                                                   PheArglysMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnPro 609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  271 GIAGCTAATCCGTCACGCAGACTCCAGAGAATCCTTCTCCACCTGCACCTGAAGGCTCA 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ||| :::||||||| TCATCA-----ATATCTGCTCCTCCTCCGCCAGATATCTCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ------ProGln-----Thr
                                              1828 AGCCCCGGGAGCGTGAGCTCAGAGTATGACGCAAGCTCGTACACGGCAGACATGAAAAG
                                                                                                                    610 ThrSerAspTyrGlyLeuTyrProSerGlySerSerSerGluGlyGlnThrThrArgGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -- ProSerThrProGlySerProProLeu
                         SerSerTyrGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMetLysLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MetSerSerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21 ThrThrThrProProProAlaSerAlaProProProThrThrProSerSerProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        41 ProSerThrIleProThrSerProProProSerSerArgSerThrProSerAlaProPro
                                                                                                                                                                                                                                    Sequence 12, Application US/10086464

Publication No. US20020199218A1

GENERAL INFORMATION:

APPLICANT: GORING:

TITLE OF INVENTION:

FILE REFERENCE: P 25,762-A USA

CURRENT FILING DATE: 2002-02-28

PRIOR APPLICATION NUMBER: US/10/086,464

CURRENT FILING DATE: 2002-02-28

PRIOR PILING DATE: 2002-02-19

PRIOR PILING DATE: 2000-08-18

PRIOR PILING DATE: 2000-08-18

PRIOR FILING DATE: 2000-08-18

PRIOR FILING DATE: 1999-10-13

PRIOR FILING DATE: 1999-10-13

SOFTWARE: PATCHING DATE: 1999-10-13

NUMBER OF SEQ ID NOS: 27

SSOFTWARE: PATCHING VET: 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2104
368
87
142
114
25
                                                                                                                                  Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                         1987 Argaatagaggcrcaargaaggcaarccrcag 2019
                                                                                                                                                                    MetGluMetGlyLyslleLysArgThrGlyGln 640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-086-464-2 (1-647) x US-10-086-464-12 (1-2104)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: DNA
ORGANISM: Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6.31e-101
1687.00
63.99%
51.76%
48.86%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProSerProProThr----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2104
                                                                                                                                                                                                                    RESULT 11
US-10-086-464-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; ORGANISM: Ara
US-10-086-464-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment Scores
                                                                        590
                                                                                                                                                                    630 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      96
                         570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                          g
                                                                                                                                          g
                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                      8
                                                                                       셤
                                                                                                              ò
                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                  ઠે
                                                                                                                                                                                                                                                                                                                                                                                                   1230
                                                                                                                                                                                                                                                                                               1170
                                                                                                                                                                                                                                                                                                                                                                                                                                                   1290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    990
                                                                                                                                                                                                                                                                                                                                                                             391
                                                                                                                                                                                                                                                                                                                                                                                                                           400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyAanValSerLeuSerAapLeuAanGluGlyMetArgProGlyGlnSerAanValTyr 569
                                                                                                                                                                                                                                331
                                                                                                                                                                                                                                                                               ValSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuValTyrGluPheVal 351
                                                                                                                                                                                                                                                                                                                              ProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrpSer 371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PheGlyvalvalLeuLeuGluLeuIleThrGlyArgArgProvalAspAlaAsnAsnVal 480
               762
                                                                                    271
                                                                                                                                  291
                                                                                                                                                                                  311
                                                                                                                                                                                                                                                                                                                                           CCTAACAACACTCTTGAATTTCATCTTCATGGAAAGGGTCGTCCGGTTTTGGATTGGCCT
                                                                                                                                  ThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrValHisLys
                                                                                                                                                 ACAAGAGTGAAGATTGCATTGGGATCAGCTAGAGGCCTTGCATATTTGCATGAAGACTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                          AlaArgMetValAlaCysAlaAlaAlaCysValArgHisSerAlaArgArgArgProArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----IlevalArgAlaLeuGlu
                                    PheMetSerSerSlyGlySerAspTyrSerAspArgProValLeuProProSer
                                                    ProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGluLeuAlaArgAla
                                                                                                        ---GCTGCAACTCTTGGTCACAACCACAAGCACTTTCACATACGATGAACTGTCCATTGCA
                                                                                                                                                                                  GlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysValGlySerGlyGln
                                                                                                                                                                                                                                GlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHisHisArgHisLeu
                                                                                                                                                                                                                                                                                                                                                                              ThrangleulysilealaleuGlySeralaLysGlyLeuSerTyrLeuHisGluaspCys
                                                                                                                                                                                                                                                                                                                                                                                                                            ------AsnProLysilelleHisArgAspile
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LysAlaSerAsnIleLeuIleAspPheLysPheGluAlaLysValAlaAspPheGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaLyg1leAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPheSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTTGGAGTAATGCTTCTTGAGCTCATAACCGGAAGACCTCCTCTGGATCTAACTGGA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGluGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnAsnGlyTyrAspArgGluGluMet
  GCTGGTCAAGGAGGTGGGAATTGGGGTCCACAGCAACCTGTGTCTGGTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MetSerGln-----
                                                                                                                                                                                                                                                                                                        1051
                                                                                                                                                                                                                                                                                                                                                      1111
                                                                                                                                                                                                                                                                                                                                                                              372
                                                                                                                                                                                                                                                                                                                                                                                                      1111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1708
                                     232
                                                                                     252
                                                                                                           814
                                                                                                                                  272
                                                                                                                                                          871
                                                                                                                                                                                  292
                                                                                                                                                                                                        931
                                                                                                                                                                                                                                 312
                                                                                                                                                                                                                                                       991
                                                                                                                                                                                                                                                                               332
                                                                                                                                                                                                                                                                                                                                352
                                                                                                                                                                                                                                                                                                                                                                                                                            392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8 6 8 6
                                                                                  8 8 8
                                                                                                                                                     원 수 명
                                                                                                                                                                                                                         8 6 8 6
                                                                                                                                                                                                                                                                                                                       6 B 6 B 6 B 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8 B 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                 ò
                                                       g
```

108

20

159

40

210

9

270

84

Oy 401 LysalaSerAsnileLeuileAspPheLy	Qy 421 AlaLyBIleAlaSerAspThrAsnThrHi	Qy 441	Db 1447 TACTTAGCTCAGAGTGCAG	Db 1507 TTTGGAGTAATGCTTC	Qy 481 TyrvalAspAspSerLeuValAspTrpA. Db 1564 GAAATGGAAGATAGCTTGGTAGATTGGG	Qy 501 GlyAspPheGluGlyLeuAlaAspAlaLy	Qy 521 AlaArgMetValAlaCysAlaAlaCy 1::	Qy 541 MetSerGln	Qy 550 GlyAsnValSerLeuSerAspLeuAsnGl ::: ::: 	Qy 570	Qy 590	Db 1924	Db 1978 ACAAGTGAGTTAAAACCTTCTG	Qy 630 MetGluMetGlyLysIleLysArgThrGl 	REE US		## AFPLICANT: Cao Yongwa Faring Moley TITLE OF INVENTION: Soy Nucleic Acid Moley TITLE OF INVENTION: Plants and Uses The FILE REFERENCE: 38-21 (5322) B FILE		
85 ThrProGlySerProProAlaProValThrProProThrArgAsn 99	10	ACCGAAACAGAACCAATGGCGGAAACAACAAC		117 SerProArgProProSerSerPsoSerProSerProSerSerAspGlyLeuSerThr 136	137 GlyValValValGly1leAlaIleGlyGlyValAlaLeuLeuValIleValThrLeulle 156	CysLeuLeuCysLysLysArgArgArgAspGluGluAspAlaTyr	173 TyrValProProProProProGlyProLysAlaGlyGlyProTyrGlyGlyGl 191	31nGlnAgnAlaThrProProSerAgpHisValValThrSerLeu	721AAIANG 747 212 ProProProLysAlaProSerProProArgGlnProProProProProProProPro 231	748 GCTGGTCAAGGAGGTGGGAATTGGGGTCCACAGCAACCTGTGTCTGGTCCT 798 232 PheMetSerSerSerGlyGlySerAepTyrSerAepArgProValLeuProProProSer 251	⋖	252 ProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGluLeuAlaArgAla 271	272 ThrasnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrValHisLys 291	311	331	332 ValSerLeuValGlyFyrCysIleAlaGlyAlaLysArgLeuLeuValTyrGluPheVal 351	352 ProAsnAsnAsnLeuGluLeuHisELeuHisGlyGluGlyArgProThrMetGluTrpSer 371	372 ThrargLeulys1leAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCys 391	392
કે ક	8 8	<u>අ</u> දි	음 경	දු පු	8 8	8 8	8 & 8	ò	g &	음 &	đ	දි දි	<i>ት</i> ଶ	<i>ት</i> ଶ	8 & 8	දු පු	රු සි	\$ A	8 S

```
olecules and Other Molecules Associated With hereof for Plant Improvement
LyspheGlualaLysValalaAspPheGlyLeu 420
                                                                                                               GJVLysLeuThrGluLysSerAspValPheSer 460
                                                                                                                                                                                        AlaargProLeuLeuAsnargalaSerGluGln 500
                                                                                                                                                                                                                                                                                                        CGTCTAGAGCTAAACTACAGTCATCAAGAGATG 1683
                                                                                                                                                                                                                                                                                                                                               GluGlyMetArgProGlyGlnSerAsnValTyr 569
|||||||
|GAGGBACAAGACCAGGACAAAGCACGTACTTG 1863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |||:::|||
GACGCAAGCTCGTACACGCCAGACATGAAAAAG 1923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ||||||| ::::: | |||||||
GAATATCAAAGCAGT---GAATATGGTGGA--- 1977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HisValSerThrArgValMetGlyThrPheGly 440
                                                                                                                                                                      ThrGlyArgArgProValAspAlaAsnAsnVal 480
                                                                                                                                                                                                                                                                                      LysMetAsnAsnGlyTyrAspArgGluGluMet 520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AspSerSerGlnTyrAsnGluAspMetLysLys 589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GluTyrAsnAlaThrGlyGluTyrSerAsnPro 609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlySerSerGiuGlyGlnThrThrArgGlu 629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ccrcag 2055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Glygin 640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              599
```

	DD 1046 TAIGCIGCITCTTCTCCA	Qy 213 ProProLysAlaProSerProProArgGlnProProProProProProProPhoPhe 232	Qy 233 MetSerSerSerGlyGlySerAspTyrSerAspArgProValLeuProProProSerPro 252 ::	Oy 253 GlybeuValbeuGlyPheSerDySerThrPheThrTyrGluGlubeuAlaArgAlaThr 272	Oy 273 AsnGlyPheSerGlualaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrValHisLysGly 292 		Qy 313 GluArgGluPheGlnAlaGluValGluIleIleSerArgValHisHisArgHisLeuVal 332 	Oy 333 SerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuValTyrGluPheValPro 352	Qy 353 AsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrpSerThr 372	Qy 373 ArgLeuLys1leAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCysAsn 392	Qy 393 ProLysIleIleHisArgAspIleLysAlaSerAsnIleLeuIleAspPheLysPheGlu 412	413 AlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThrAsnThrHisValSer	DB 1649 GCTCAAGTTTCGGACTTTGCAAAAATTGCCAITAGAATTAAATAAAAAAAAAA	1709	DD 1769 ACTGAAAAGTCTGATGTATTCTTTTGGGGTTGTTGGGGCTAATTACAGGTCGG 1828	Qy 473 ArgProValAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAlaArgPro 492 :::	493	Db 1889 CTGTTGACGGAAGCACTTGACAATGACAACTTTGAAATTTTGGTGGATCCAAGAGCTGGGG 1948 Oy 513 AsnGlyfyrAspArgGluGluMetAlaArgMetValAlaCysAlaAlaAlaAlaAlaAg 532
3.38-91 Length: 1539.00 Matches:	Percent Similarity: 55.19% Conservative: 95 Best Local Similarity: 43.16% Mismatches: 141 Query Match: 44.57% Indels: 213 DB: 13	2 (1-647) x US-10-424-599-57846 (1-2655) SerSerAlabroSerProGlyThrGlySerProProSerProBroSerAsnSer	20 T	S ANICATARCACAAACACAAACACCCAANIICCCCIGCICCTICATCICGAC S ProSerSerProProProProSerSerSer	ArgSerThrProSerAlaProProProFroProThrProSerThrPro :::	0 GlySerProProfedical Control of	9 SerProProAlaProThrThrProGlySerProProAlaProValThrProProThrArg	ABDProproproSerValproGlyProproSerAshProSerArgGluGlyGly	17 SerProArgPro	SerProProSerProSer	130 130 130	626 GAAAATCCACCAAAAACTACTCCTTCACATCCTCCTCCATCAGTTTCTGAAACTCCT 685	CCTAAACCTCCTTCCTCTGATGTTCCCCCTCCATCCACATTGCCTTCAACTCCTCCTTCA	130 130 130 130 130 130 130 130 130	13	806 GIGGGGGGCCGAAGGIGICGCICICITICCAACIGAAACCCCACIGCIAGACCI 865 131SerAspGlyLeu 134	6 u	ACACTGGAGGATCTGTGCTATTGGAATTGTAGTTTTATTGTCTCTCTC

```
APPLICANT: Liu, Jingdong
APPLICANT: Liu, Jingdong
APPLICANT: Zhou, Yihua
APPLICANT: Screen, Steven E
APPLICANT: Screen, Steven E
APPLICANT: Tabaska, Jack E
APPLICANT: Tabaska, Jack E
APPLICANT: Tabaska, Jack E
APPLICANT: Tabaska, Jack E
APPLICANT: PAPPLICANT: Plants and Uses Thereof for Plant Improvement
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
CURRENT APPLICATION NUMBER: US/10/425,114
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 73128
SEQ ID NO 1427
LENGTH: 2190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProProSerProSerSerAspGlyLeuSerThrGlyValValValGlyIleAla1leGly 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           473 TCATCGTCGGATAATACAGCCGCTGTGATCACCGGCGTGGTGCTTGGGGTG---GTGGGC 529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ||||||| :::||| ||| ||| :::
TCTCCTTCTCCCTCCTCAATCACCTGCAGGAAAAGGAAAAGGGTGTCAGACCGTAACTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  :::||||||||
242 TCTAGCCCACAGTCCTCCATCATCCTCCAAGAAGTCGCCGCCACACAAGAAGCATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyProProSerAsnProSerArgGluGlyGlySerProArgProProSerSerProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCTTTGGCGCCAAAATCATCTTCA-----AAGTCACCCTCGCCACCAAAGGGTGAATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProGlySerProProAlaProValThrProProThrArgAsnProProSerValPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 ATGATGCCTTCTTCCCTCCTTCTCGCTCGCCCCATTCCACCTTCGACGACCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 122 AGAGCTATTTAGCAATAATACATACATAGCTATACCTCTTTAGGTCAAGAGGGTGGAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ---ProThrThrProSerSerProProProProSerThrIlePro------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               46 ThrSerProProSerSerArgSerThrProSerAlaProProProProProThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    66 ProSerThrProGlySerProProProLeuProGlnProSerProProAlaProThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAAAGTGCTAGTACATCTAGCTCTAAAGATGGGAAGACGAAGAAGTCGTCTTCATCGTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerProProSerAsnSerThrThrThrProProProAlaSerAlaProPro-
                                                                                                                                                                                                                                                                                                                                                                          2190
331
80
167
87
                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-086-464-2 (1-647) x US-10-425-114-14127 (1-2190)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MetSerSerAlaProSerProGlyThrGlySerProPro-
                                                                                                                                                                                                                                                                                                                     , OTHER INFORMATION: Clone ID: LIB148-034-D5_FLI
US-10-425-114-14127
2252 TCCCAAAATAAA---CTGGGCATGGGA 2276
                                                                                                                                                                                                                                                                                                                                                                                                                                Indels:
                                                ; Sequence 14127, Application US/10425114; Publication No. US20040034888A1; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                         1.09e-84
1437.50
61.90%
49.85%
41.63%
                                                                                                                                                                                                                                                                                                                                                                                                    Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                          ORGANISM: Zea mays FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ------
                                                                                                                                                                                                                                                                                                                                                                Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                302
                                                                                                                                                                                                                                                                                  TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                             No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ઠે
                                                                 1348
                                                                                                                                                                                                                                                                                                                                                                                                                                             1768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2008
                                                                                                                     1408
                                                                                                                                                                          1468
                                                                                                                                                                                                                            1528
                                                                                                                                                                                                                                                                                 1588
                                                                                                                                                                                                                                                                                                                           1828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2161
                                                                                                                                                                                                                                                                                                                                                                                ---GAGATCACGACCCAACTGTCTTC 2251
                                                                                            332
                                                                                                                                                                                                   372
                                                                                                                                                                                                                                                        392
                                                                                                                                                                                                                                                                                                             412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        632
                                                                                                                                                                                                                                                                                                                                                                                                                    452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ArgProValAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAlaArgPro 492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsn 512
                                                                                                                                                                                                                                                      SerieuvalGlyTyrCys1leAlaGlyAlaLysArgLeuLeuvalTyrGluPhevalPro
                                                                                                                                                                                                                  AlaLy8ValAlaAspPheGlyLeuAlaLysIleAlaSerAspThrAsnThrHisValSer
|||:::||||:::|||||||||||||||||||:::|||
                                                                                                                                                                                                                                                                                                                                                                                                                                   1709 ACACGTGTAATGGGAACCTTTGGGTACATGGCACCAGAATATGCGACAAGTGGAAACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAlaAlaCysValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1949 AAGAACTACGATAGAAATGAAATGTTTCGGATGATCGAGGCTGCCGCAGCCTGTGTACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CACTCATCGGTGAAGAGCCACGCATGAGTCAGGTGGTGAGAGCTTTAGATTCCTTGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsnValTyrSerSerTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2117 -------TTTGATTCGGCGCAGCAATCTGCACAATCAGAATGTTAGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Arederitticeseagecaageaare----Agricesitticitaargagicagagiage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        613 Tyr-GlyLeuTyrProSerGlySerSerSerGluGlyGlnThrThrArgGluMetGluMe
ValleuProSerGlyLysGluValAlaValLysGlnLeuLysValGlySerGlyGlnGly
                                                                                            GluArgGluPheGlnAlaGluValGluIleIleSerArgValHisHisArgHisLeuVal
                                                                                                        AsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrpSerThr
                                                                                                                                                                                                                                                                                                             ProLysIleIleHisArgAspIleLysAlaSerAsnIleLeuIleAspPheLysPheGlu
                                                                                                                                                                                                                                                                                                                                                                                                                    ThrargvalMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGlyLysLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ThrGluLysSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThrGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HisSerAlaArgArgProArgMetSerGlnIleValArgAlaLeuGluGlyAsnVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMetLysLysPheArgLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MetalaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnProThrSerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tGlyLyslleLysArgThrGlyGlnGly 641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ::: | | | :::
TGGAGGAGTA----
                                                                  1289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          632
                                                                                                                      1349
                                                                                                                                                                                                                                                                                 1529
                                                                                                                                                                                                                                                                                                                                       1589
                                                                                                                                                                                                                                                                                                                                                                                           1649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2216
               1229
                                        293
                                                                                            313
                                                                                                                                               333
                                                                                                                                                                          1409
                                                                                                                                                                                                    353
                                                                                                                                                                                                                             1469
                                                                                                                                                                                                                                                        373
                                                                                                                                                                                                                                                                                                             393
                                                                                                                                                                                                                                                                                                                                                                  413
                                                                                                                                                                                                                                                                                                                                                                                                                       433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     593
                                                           셤
                                                                                         8 8 8
                                                                                                                                                                 ద
                                                                                                                                                                                                 ò
                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                           요
                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                               원
                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                     8 6 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6 B 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                원
                                       ò
```

85

301

9

181

45

121 31

61 31

13

105

	Qy 571 rTyrGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMetLysLysPheAr 591 bb 1790GGCGTGCTCCGAC	RESULT 15 US-10-425-114-6300 i Sequence 6300, Application US/10425114 j Publication No. US20040034888A1 j GENERAL INFORMATION: j APPLICANT: Liu, Jingdong j APPLICANT: Zhou, Yihua j APPLICANT: Zhou, Yihua	APPLICANT: Screen, Steven E APPLICANT: Tabeaka, Jack E APPLICANT: Tabeaka, Jack E APPLICANT: Tabeaka, Vongwei TITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associated With TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement FILE REFERENCE: 38-21(53313)B CURRENT APPLICATION NUMBER: US/10/425,114 CURRENT PILING DATE: 2003-04-28 NUMBER OF SEQ ID NOS: 73128	; SENTING STONE ST	Alignment Scores: Pred. No.: Score: Score: Percent Similarity: 74.27* Query Match: 13.62* Alignment Scores: Best Local Similarity: 41.62* DB: Alignment Scores: Alignment Sco	US-10-086-464-2 (1-647) x US-10-425-114-6300 (1-1500) Qy	Qy 225 ProProProProProProPheMetSerSerGlyGlySerAspTyrSer 242
Qy 146 GlyValAlaLeuLeuValIleValThrLeuIleCysLeuLeuCysLysLysLysArghrg 165 Db 530 TTCGCTCTGCTCTTCTCCATCGTGGCGTGCTGCCCCAAGAAGAAGAACGT 589 Cy 166 ArgAspGluGluAspAlaTyrTyrValProProProProProProProProProProToGlyPro	219 SerProProArgGlnProPro-ProProProProProPheMetSerSerSerGlyGl	275 Sergiual adamicul (1907) 1907 19	Oy 314 gGluPheGlnAlaGluValGluIleIleSerArgValHisHisArgHisLeuValSerLe 334 ID 1018 CGAGTTCCAGGGGGGGGAGATCATCAGCGGGGGCACCCACC	1138 CACGCTGGAGCACCATCTGTACGCCAGGCCCTGTCATGAGAGGACCGCGTT 374 uLysileAlaLeuGlySerAlaLysGlyLeuSerTytLeuHisGluAspCysAshProby 11198 GAAGATCGCGTCGCCAGGCCTCCCCCAGGAGGACTCGCTT 1198 GAAGATCGCGCTCGCCAAGGGCCTCGCCTCCACGAGAGGACTGCCATCGC 1198 GAAGATCGCGCTCGGCCAAGGGCCTCCGCCTACCTCCACGAGAGCTGCCATCGC	Oy 394 BILBILEHISARGASDILELYBALASERABNILELEUILEASPPHELYSPHEGLUALALY 414	Qy 434 gValMetGlyThrPhedlyTyLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGl 454 Db 1378 cGrCaTcGGCACCTACCGGCGCCGGAGTACGCGCCCAGCGCAAGCTCACGGA 1437 Qy 454 uLysSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThrGlyArgArgPr 474 Db 1438 GGGTCGGACGTCTCTCTTCTCTTCGCGCTCATGTGGAGCTACTGGGGGCGCCCCC 1497 Qy 474 oValAspAlaAshAshAshAshAshAshAshAshAshAshAshSerLeuValAspFTralTCTTCTTCTTCTTCTTCTTTCTTTTTTTTTTTTTTT	Db 1498 CATCGATACCACCAACTACATGGAGGACACCTCCTGGAGCTGGGCCGCCCGCTGCT 1554 Oy 494 uAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAlaLySMetAs 512

õ

```
GlyasppheGluGlyLeualaaspalaLysMetasnasnGlyTyraspargGluGluMet 520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MetSerGln11eValArgAlaLeuGluG]yAsnValSerLeuSerAspLeuAsnGluGJy 560
                                                     322
                                                                                                                                      GTTAAGAGTCTTAAAAGCAGGTAGTGGCCAAGGAGAGCGAGAGTTCCAAGCTGAGATTGAC 382
                                                                                                                                                                  401
                                                                                                                                                                                                                                                                                                                 622
                                                                                                                                                                                                                                                                                                                                     441
                                                                                                                                                                                                                                                                                                                                                                                                   742
                                                                                                                                                                                                                                                                                                                                                                                                                      859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AlaArgMetValAlaCysAlaAlaCysValArgHisSerAlaArgArgArgProArg 540
                 Acessa cesce cerrecre crecerca canada cerrecre resece casas de ses
                                        281
                                                                                 GlyGlnGlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLysGluValAla 301
                                                                                                                         ValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGlu 321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnValTyr 481
AspargProVal --- LeuProProProSerProGlyLeuValLeuGlyPheSerLysSer 261
                                                                                              GGACAAGGTGGATTCGGCTATGTCCATAAGGGTGTGTTGCCTAGTGGAAAGGAAGTGGCA
                                                                                                                                                                                                                                                                                             LysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAspIleLys
                                                                                                                                                                                                                                                                                                         MetArgProGlyGlnSerAsnValTyrSerSerTyrGlyGlySerThrAspTyrAspSer
                                       ThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeu
                                                                                                                                                                                                                                                                                                                                                                            LysileAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGlyTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1040
243
                    143
                                                             203
                                                                                                     263
                                                                                                                         302
                                                                                                                                              323
                                                                                                                                                                                      383
                                                                                                                                                                                                                                                                                              382
                                                                                                                                                                                                                                                                                                                                       402
                                                                                                                                                                                                                                                                                                                                                                                                   683
                                                                                                                                                                                                                                                                                                                                                                                                                                             743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     541
                                        262
                                                                                  282
                                                                                                                                                                                                                                                    362
                                                                                                                                                                                                                                                                                                                  563
                                                                                                                                                                                                                                                                                                                                                           623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             561
                                                                                                                                                                   322
                                                                                                                                                                                                                                                                          503
                                                                                                                                                                                                                                                                                                                                                                                 422
                                                                                                                                                                                                                                                                                                                                                                                                                         442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      920
```

8 6 8

à

```
        Qy
        601 AsnAlaThrGlyGluTyrSerAsnProThrSerAspTyrGlyLeuTyrProSerGlySer 620

        Db
        1220 TTTGGCACCAGC------AGTGGCTCC 1240

        Qy
        621 SerSerGlu 623

        Db
        1241 AGTGGTGAA 1249
```

Search completed: April 25, 2004, 02:33:32 Job time : 696 secs

Run

```
Arabidops
Arabidops
Arabidops
Arabidops
Arabidops
Arabidops
                                                                                                                                                                                                                                                                                                                                                                                        Sequence
Arabidops
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Arabidops
Oryza sat
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Arabidops
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
Arabidops
Arabidops
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Oryza sat
Oryza sat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Arabidops
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Arabidops
                                                                                                                                                                                                                                                                                                                              AX088876 Sequence
AX825703 Sequence
                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Oryza sa
                                                                                                                                                                                                                                                                                                                                                                              Brassica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                   Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                      Description
                                                                                                                                                                                                                                                                                                                                                            AX825705
AY028699
AY028699
AY128792
AY128792
AY065788
AY065901
AY065901
AY069024
AY069024
AX069024
AX069024
AX069024
AX069024
AX069024
AX069024
AX069025
AX068881
AX068881
AX068881
AX068881
AX068881
AX068881
AX068881
AX068881
AX068881
AX068881
AX068881
AX068881
AX068881
AX068881
AX068881
AX068881
AX068881
AX068881
AX068881
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX066135
AX0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AF424623
AY075681
AC137001
AK110196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ALIGNMENTS
                                                                                                                                                                                                                                                             SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AX825712
AX088881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4X088885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4Y224526
                                                                                                                                                                                                                                                                                                                                                                              AY028699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4K103247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4X088882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4X088884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AY113877
                          em_htg_inv:*
em_htg_other:*
em_htg_mus:*
                                                                                                                                                                        em_htgo_other:*
                                                                                                                                em_sy:*
em_htgo_hum:*
em_htgo_mus:*
                                                                                                                                            tgo hum: *
                                                                      em_htg_pln: *
em_htg_rod: *
em_htg_mam: *
                                                                                                                 vrt:*
                em_htg_hum:*
                                                                                                                                                                                                                                                                                                      BB
                                                                                                                                                                                                                                                                                        Query
Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2371
82356
92861
125021
114367
125502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2324
2324
2327
2327
1902
1902
1939
1939
2320
2025
2025
2025
2025
2026
2026
2026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1515
em vi:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              45.6
45.4
45.4
 2936.5
2936.5
2936.5
2936.5
2936.5
2934.5
2934.5
2934.5
1812.1
1148.5
1748.5
1748.5
1748.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14985
14790.5
14790.5
14790.5
14590.5
1456
1456
1436
1431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1637.5
1574.5
1567.5
1567.5
1507
                                                                                                                                                                                                                                                                                                      Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  687
                                                                                                                                                                                                                                                                                         Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                          υ
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Command line parameters:
-MODEL=frame+ pln.model -DEV=xlp
-40=/ORD12_1/USPTO spool_p/US1008464/runat_11052004_121814_7841/app_query.fasta_1.839
-40=/ORD12_1/USPTO spool_p/US10086464/runat_11052004_121814_7841/app_query.fasta_1.839
-DECALIGN=200 -THN_SCORE=pct -THR_MAX_RIX=blosum62 -TRANS=bluman40.cdi -LIST=45
-UNITS=bits -START=1 -END=-1 -MAX_RIX=blosum62 -TRANS=bluman40.cdi -LIST=45
-UNTIS=bits -START=1 -END=-1 -MAX_RIX=NO -TRR_MIN=0 -ALIGN=15 -MODE=LOCAL
-OUTFRYT=pct -NORM=ext -HEAPSIZE=560 -MINIEN=0 -MAX_REN=200000000
-USER=US10086464 @CGN 1 1_5265 @runat_11052004_121814_7841 -NCPU=6 -ICPU=3
-NO_MMAP -LARREQUERY -NEG SCORES=0 -WAIT -DSPBILOKE-100 -LONGLOG
-DBV TIMEOUT=120 -WARN -NIREOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6
-FGAPEXT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELOPE=6 -DELEXT=7
                                                                                                ; Search time 5877 Seconds (without alignments) 4771.643 Million cell updates/sec
                                                                                                                                                                                        647
                                                                                                                                                         US-10-086-464-2
3453
1 MSSAPSPGTGSPPSPPSNST.....REMEMGKIKRTGQGYSGPSL
                                                                                                                                                                                                                                                                                                                                   6940544
                 GenCore version 5.1.6
(c) 1993 - 2004 Compugen Ltd.
                                                                       nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                      3470272 seqs, 21671516995 residues
                                                                                                                                                                                                                                                                                                                                 Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                    Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                             Xgapop 10.0 , Xgapext
Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
                                                                                                   May 12, 2004, 20:49:18
                                                                                                                                                                                                                                                                                                                                                               length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9b htg: *
9b on: *
9b on: *
9b on: *
9b on: *
9b on: *
9b on: *
9b on: *
9b on: *
9b on: *
9b on: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gb_vi:*
em_ba:*
em_fun:*
em_hum:*
em_in:*
em_mu:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       em_pat: *
em_ph: *
em_pl: *
em_ro: *
em_sts: *
em_un: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            em_or: *
                               Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GenEmbl:*
                                                                                                                                                                                                                     BLOSUM62
                                                                                                                                                                                                                                                                                                                                                              Minimum DB seq
Maximum DB seq
                                                                                                                                                                           Perfect score:
                                                                                                                                                                                                                     Scoring table:
                                                                        OM protein -
                                                                                                                                                                                       Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Database
                                                                                                     <u>6</u>
```

~

```
1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   340
                                                              420
                                                                                             160
                                                                                                                           480
                                                                                                                                                          180
                                                                                                                                                                                        540
                                                                                                                                                                                                                         200
                                                                                                                                                                                                                                                       600
                                                                                                                                                                                                                                                                                    220
                                                                                                                                                                                                                                                                                                                   099
                                                                                                                                                                                                                                                                                                                                                   240
                                                                                                                                                                                                                                                                                                                                                                                  720
                                                                                                                                                                                                                                                                                                                                                                                                                 260
                                                                                                                                                                                                                                                                                                                                                                                                                                               780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      460
                                                                                                                                                          AlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTAAGATTGCTTCTGATACAAAACACGCATGTATCAACACGTGTGGTGTGGGAACCTTTGGG
                               TyrSerAspArgFroValLeuProFroProSerProGlyLeuValLeuGlyPheSerLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GluileileSerArgValHisHisArgHisLeuValSerLeuValGlyTyrCysIleAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAGATCATCAGCAGAGTTCACCACAGGCATCTGGTGTCTCTTGTTGTTATTGCATCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  341 GlyAlaLysArgLeuLeuValTyrGluPheValProAsnAsnAsnLeuGluLeuHisLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGTGCCAAAAGATTGCTTGTCTATGAGTTTGTTCCTAACAACAACAACTGCGGGCCTTCACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTTGGCGTTGTTGGAGCTCATTACTGGACGTCGACCCGTTGATGCCAACAATGTC
   CCACCTTCAGTCCCAGGACCACCGTCCAATCCTTCACGCGAAGGAGGATCTCCTCGACCT
                                                                                                                                                                                                                                                                                       ThrProProSerAspHisValValThrSerLeuProProProLysAlaProSerPro
                                                                                                                                                                                                                                                                                                                                                      ProArgGlnProProProProProProProPheMetSerSerSerGlyGlySerAsp
                                                                                                                                                                                                                                                                                                                                                                  TACTOGGACCGTCCAGTTCTTCCTCCACCGTCTCCAGGCTTGTGTTAGGCTTCTCCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LeuGlyGlnGlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLysGluVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Traccaccaccccccrrccrccrccacaaccrcrcrrccracrccaaacarcr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LysAlaSerAsnIleLeuIleAspPheLysPheGluAlaLysValAlaAspPheGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAGGCTTCAAACATATTGATAGATTTCAAGTTTGAAGCTAAGGTTGCTGATTTTTGGTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaLys1leAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TyrleualaproglutyralaalaserglylysleuthrglutysSeraspValpheSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAshVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1261
    301
                                  121
                                                                 361
                                                                                                 141
                                                                                                                             421
                                                                                                                                                            161
                                                                                                                                                                                          481
                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                        541
                                                                                                                                                                                                                                                                                       201
                                                                                                                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                                                                      221
                                                                                                                                                                                                                                                                                                                                                                                     661
                                                                                                                                                                                                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                                                                                                                                                                 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1381
                                                                                   8 6 6 6
                                                                                                                                                                                                                    8 6
                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                          8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8 & 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8 8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        성 음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
   음 성 음
                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ⋩
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                / GOOD STATE 1
/ COOD 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 . 1"
/ CACA 4 7 0 3 .
                     PAT 17-MAR-2001
                                                                                                                         Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
rosida; eurosida II; Brassicales; Brassicaceae; Brassica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCATCCACTATTCCGACATCTCCTCCTTCTTCTCGCTCTACACCTTCTGCTCCTCCT 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ProAlaProThrThrProGlySerProProAlaProValThrProProThrArgAsnPro 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCATCTCCACCAACTCCATCTACGCCGGGATCTCCACCTCCTCTTCCTCAGCCGTCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCCGCTCCAACTACGCCCGGATCTCCACCCGCACCTGTTACTCCTACTCGAAAACCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProProSerValProGlyProProSerAsnProSerArgGluGlyGlySerProArgPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ProSerThr11eProThrSerProProSerSerArgSerThrProSerAlaProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProSerProProThrProSerThrProGlySerProProLeuProGlnProSerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MetSerSerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThr
                     linear
                                                                                                                                                                                     doring, D. and Silva, N.

Proline-rich extensin-like receptor kinases
Patent: WO 0114563-A 101-MAR-2001;
Goring, Daphne (CA); Silva, Nancy (CA)
Location/Qualifiers
1. 1944
/ Mol type="unassigned DNA"
/ db_xref="taxon:3708"
1. 1944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1944
647
0
0
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                      note="unnamed protein product"
                     DNA
                   1944 bp
1 from Patent WO0114563.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (1-1944)
                  AX088876
Sequence 1 from Patent 1
AX088876
AX088876.1 GI:13397639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   x AX088876
                                                                                               napus (rape)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4.02e-76
3453.00
100.00%
100.00%
                                                                                                                 napus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-086-464-2 (1-647)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ent Similarity:
Local Similarity:
                                                                                               Brassica |
Brassica |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ٦
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match:
DB:
AX088876
LOCUS
DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pred. No.:
                                                                                                                                                                           REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alignment
                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent &
Best Loca
                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score:
```

8 6 8 6

ð g \$ B &

ద

ò

AKMINIGYDREEMARMVACAAACVRHSARRRPRMSQIVRALEGNVSLSDLNEGMRPGQS

ANTIGORYED MENTAL VALLEGINA VALLEGIN	Alignment Scores: 4.02e-76 Length: 1944 Score: 3453.00 Matches: 647 Percent Similarity: 100.00% Conservative: 0 Best Local Similarity: 100.00% Mismatches: 0	100.00% f Gaps: (1-647) x AX825703 (1-1944)	Qy 1 MetSerSerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThr 20	Db 1 ATGICTICGGCGCGCTCCGGGGACTGGCTCCCTCCATCTCCATCAACTCCACA 60 Qy 21 ThrThrThrProProAlaSerAlaProProProProProSerSerProProPro 40	Db 61 ACCACCACTCCTCCAGCTTCCGCTCCTCCTCCACCACACTTCTCTCCTCCGCG 120 Ov 41 ProSerThr1leProThrSerProProProSerSerArdSerThrProSerAlaProPro 60		181	241	Db 301 CCACCTTCAGTCCCAGGACCACCGTCCAATCCTTCACGCAAAGAAGATCTCCTCGACGT 360	Qy 121 ProSerSerProSerProProSerFroSerSerAspGlyLeuSerThrGlyValValVal 140	Qy 141 Gly1lealaileGlyGlyValAlaLeuLeuVal1leValThrLeuIleCysLeuLeuCys 160 Db 421 GGAATCGCCATCGGAGGAGTCGCTTGTGATAGTGACTCTGATTTGTCTCCTCTGT 480	Qy 161 LyBLyBLyBArgArgArgAsparghapGluGluAspAlaTyrTyrValProProProPro 180 162 LyBLyBLyBArgArgArgAspGluGluAspAlaTyrTyrValProProProProProProProProProProProProProP	181 GlyProLysAlaGlyProTyrGlyGlyGlnGlnGlnGlnTrpArgGlnGlnAsnAla 181 GlyProLysAlaGlyProTyrGlyGlyGlnGlnGlnGlnTrpArgGlnGlnAsnAla	201		Db 661 CCACGGCAACCTCCACCTCCACCGCCTTTCATGAGCAGCGGGGGGGCGCTCCGAC 720	Qy 241 TyrSerAspArgProValLeuProProProSerProGlyLeuValLeuGlyPheSerLys 260	Qy 261 SerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeu 280	281 LeuGlyGlnGlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLysGluVal
Oy 481 TyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGluGln 500	Oy 501 GlyaspPheGluGlyLeualaaspAlaLysMetAsnAsnGlyTyrAspArgGluGluMet 520	Db 1561 GCTCGCATGGTTGTGTGTGCTGGGCTTGTGTTCGCCATTCAGCTCGCCGCAGACCTCGC 1620 Qy 541 MetSerGlnIleValArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGly 560	1621 ATGAGCCAGATTGTGCGTGGGGTTAGAAGGAAATGTATCACTGTCAGATCTTAACGAAGGG	Qy 561 MetArgProG1yG1nSerAsnValTyrSerSerTyrG1yG1ySerThrAspTyrAspSer 580 b 1681 ATGAGACCAGGTCAAAGCAATGTATACAGCTCATACGGAGGAAGCACCGATTATGACTCG 1740	Oy 581 SerGlnTyrAenGluAepMetLysLysPheArgLysMetAlaLeuGlyThrGlnGluTyr 600	Oy 601 AsnAlaThrGlyGluTyrSerAsnProThrSerAspTyrGlyLeuTyrProSerGlySer 620	Glygln 6	Oy 641 GlyTyrSerGlyProSerLeu 647	RESULT 2	AX825703 AX825703 LOCUS DEFINITION Sequence 1 from Patent WO03072763. ACCESSION AX825703 ACCESSION AX825703 ACRESION AX825703	S . Brassica napus (rape)	Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids; eurosids II; Brassicales; Brassicaceae; Brassica.	AUTHORS Goring, D., Silva, N. and Haffani, Y.Z. AUTHORS Increasing plant seed production JOURNAL Patent: WO 03072765-A1 04-SEB-2003; Goring, Daphne (CA): Silva, Nancy (CA): Haffani, Yost, Z. (CA)	FEATURES Location/Qualifiers Source 1. 1944 /organism="Brassica napus"	/mo.l_Cype="unaBalgned DNA" /db_xref="taxon:3708" 1.	/note="unnamed protein product" /codon gtart=1 /protein id="CPE8486.1"	/db_xref="GI:39751231" /translation="MSSAPSPGTGSPPSPPSNSTTTTPPPASAPPTTPSSPPPPSTI PTSPPSSRSTPSAPPSPPTPSTPGSPPLPQPSPPATTPGSPPAPTTPPTRNPPP	SVEGFSNESKEGSEKFESSESFERSSSLEIGVVVGIALGGALLUTVILLLLUC KKKRRRDEEDAYVVPPPPPPGGQQQQMKQONATPPSDHVVTSLPPPFKAP SPPRQPPPPPPPPPPSSSGGSDYSDRPVLPPPSPGIVLGFSKSTFTYBELAARAINGFS EANLLGQGGFGYVHKGVLPSGKEVAVKQLKVGSGQGRREFOARIISRVHHRHLVSL	VGYCIAĞAKRLLVYEFVPNNNLELHLHĞBGRPTMEWSTRLKIALGSAKGLSYLHEDÜN PKIIHRDIKASNILIDFKFEAKVADFGLAKIASDTNTHVSTRVWGTFGYLAPEYAASG KLTEKSDVFSFGVVLLELITGRRPVDANNVYVDDSLVDWARPLLNRASEQGDFBGLAD

620

9

```
/product="receptor protein kinase PERKI"
/product="AAK21956.1"
/broduct="114147449"
/broduct="MSABAPSGETGSPPPRNSTTTTPPPASAPPTTPSSPPPSTI
/baxef="G1:13447449"
/bbxref="G1:13447449"
/bbxref="G1:13447449"
/bbxref="G1:13447449"
/bbxref="G1:13447449"
/bbxref="G1:13447449"
/brspppppRSSRSTPSPPSPPRDFDEDPROPRAPPPTRUPPPSTRUPPPSSRSTPPSPRSTREGSPPPPRTRUPPPSPPRSPRSTREGSPPPPRCARGGSPRGGOQOQNARQQNATPREDHVUTLICLLC
KKKRRREDEDBAYYVPPPPPRCARGGSPRGGOQOQNARQQNATPREDHVATSLPPPRRAP
SPRQPPPPRPPPPRCARGGSPRGGOQOQNARQQNATPREDHVATRUPES
EANLLGGGGGGTGYUKKGVLPSGRSTRAVNGLAKGSGGEREPQAREFOAREFOARERARARNGFS
EANLLGGGGGTGYUKKGVLBGGRSTVANGGGEREPQARSTRIKTALGSAKCLSYLHEDCN
PKITHRDIKASNILIDFKFRAKVADPGLAKTASDTWHYSTRVMGTFGYLAPEYAASG
KLTREXSDVSFGYVULLELITGRRPPDANNYVDDSLUNMARPLLNRASEGGSPEGLAD
AKMINGYDREBMARNACARGARRRPRARGIVATGEYSNPTSDYGLYPSGSSSEG
                                                                                                                                                                      2189 bp mRNA linear PLN 26-MAR-2001 receptor protein kinase PERK1 mRNA, complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta, Spermatophyta, Magnoliophyta, eudicotyledons, core eudicots, rosida, eurosida II, Brassicales, Brassicaceae, Brassica.
Silva, N. E. and Goring, D. R.
Characterization of a novel Brassica napus receptor protein kinase
                                                                                ATGAGACCAGGTCAAAGCAATGTATACAGCTCATACGGAGGAAGCACCGATTATGACTCG
               MetArgProGlyGlnSerAsnValTyrSerSerTyrGlyGlySerThrAspTyrAspSer
                                                                 SerGlnTyrAsnGluAspMetLysLysPheArgLysMetAlaLeuGlyThrGlnGluTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Unpublished
2 (bases 1 to 2189)
21/a,N.F. and Goring,D.R.
Direct Submission
Submitted (19-MAR-2001) Biology, York University, 4700 |
Street, Toronto, Ontario M3J 1P3, Canada
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2189
647
0
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Brassica napus"
/mol_type="mRNA"
/db_xref="taxon:3708"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QTTREMEMGKIKRTGQGYSGPSL"
                                                                                                                                                                                                                                        GGTTATAGTGGACCTTCTCTT 2037
                                                                                                                                                                                                                          GlyTyrSerGlyProSerieu 647
                                                                                                                                                                                                                                                                                                                                               AY028699.1 GI:13447448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           97. . . 2040
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                    Brassica napus (rape)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4.38e-76
3453.00
100.00%
100.00%
                                                                                                                                                                                                                                                                                                                     Brassica napus
AY028699
                                                                                                                                                                                                                                                                                                                                                                                       Brassica napus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                         AY028699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PERK1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment Scores:
Pred. No.:
                                      1777
                                                                                        1837
                                                                                                                                             1897
               261
                                                                 581
                                                                                                                    601
                                                                                                                                                                                                                          641
                                                                                                                                                                                                                                                                            RESULT 4
AY028699
LOCUS
DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                              g
                                                                                   g
                                                                                                                                                                                                                                              셤
                                                              ò
                                                                                                       ò
                                                                                                                                      g
                                                                                                                                                            ठ
                                                                                                                                                                                        셤
                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                         1116
                                                                                                                                                                                                                                                                                                                                                                                                  CATGGGGAGGACGCCTACAATGGAATGGAGCACCAGATTGAAGATTGCTCTTGGATCT 1236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TACTTGGCTCCGGAATACGCTGCAAGCGGAAAGCTCACGGAGAAGTCTGACGTTTTCTCA 1476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTTGGCGTTGTGTGTTTGGAGGTCATTACTGGACGTCGACCCGTTGATGCCAACAATGTC 1536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCTCGCATGGTTGCTTGTGCTGCGGCTTGTGTTCGCCATTCAGCTCGCCGCAGACCTCGC 1716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1717 ATGAGCCAGATTGTGCGTGCGTTAGAAGGAAATGTATCACTGTCAGATCTTAACGAAGGG 1776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                                                          AlavalLysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluVal 320
                                                                                                                                                                                                                                                                                                                                             GluIleIleSerArgValHisHisArgHisLeuValSerLeuValGlyTyrCysIleAla 340
                                                                                                                                                                                                                                                                                                                                                                                                                                                       HisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySer 380
                                                                                                                                                                                    280
                                                                                                                                                                                                              936
                                                                                                                                                                                                                                      LeuGlyGlnGlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLySgluVal 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPheSer 460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGluGln 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMet 520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AlaArgMetValAlaCysAlaAlaAlaCysValArgHisSerAlaArgArgArgProArg 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MetSerGlnIleValArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGly 560
                       SerThrPheThrTyrGluGluLeualaArgAlaThrAsnGlyPheSerGluAlaAsnLeu
                                                                                                                                                                                                   AGCACTTTCACATACGAGGAGCTAGCTAGAGCCACCAATGGTTTCTCCCGAGGCGAACTTG
GGTCCCAAAGCCGGAGGACCTTACGGTGGACAGCAGCAACAATGGCGGCAACAAAACGCA
                                                                          ProArgGlnProProProProProProProPheMetSerSerSerGlyGlySerAp
                                                                                                                               TyrSerAspArgProValLeuProProProSerProGlyLeuValLeuGlyPheSerLys
                                                                                                                                             937 TTAGGACAAGGGGGGTTCGGTTACGTGCACAAAGGTGTTGCCTAGTGGGAAAGAAGTT
                                                                                                                                                                                                                                                                                                         PheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TATGTAGATGACAGCTTAGTTGACTGGGCACGACCATTGCTTAACCGAGCATCTGAGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LysalaSerasnileLeuileAspPheLysPheGluAlaLysValAlaAspPheGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AlaLysIleAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGly
                                                 697
                                                                                                     757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          461
                                                                                                                                                                                                           877
                                                                                                                                                                                                                                                                                                                                                                                                                            1117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               481
                        201
                                                                          221
                                                                                                                               241
                                                                                                                                                        817
                                                                                                                                                                                  261
                                                                                                                                                                                                                                       281
                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                     997
                                                                                                                                                                                                                                                                                                                                               321
                                                                                                                                                                                                                                                                                                                                                                                                    341
                                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           541
                                        8 6 8
                                                                                                                       रुं है रुं
                                                                                                                                                                                                   8 8 8 8
                                                                                                                                                                                                                                                                                                            8 4 8 4 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8686
               ે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6 B 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8 8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8 6 8 6 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
```

ઠે

~

Thu

```
1417
                                                                                                                                                                         1057
                                                                                                                                                                                                                                                                                                                                                                                                 1537
       597
                    248
                                 757
                                               268
                                                            817
                                                                          288
                                                                                       877
                                                                                                     308
                                                                                                                  937
                                                                                                                                328
                                                                                                                                             997
                                                                                                                                                           348
                                                                                                                                                                                      368
                                                                                                                                                                                                    1117
                                                                                                                                                                                                                 388
                                                                                                                                                                                                                              1177
                                                                                                                                                                                                                                            408
                                                                                                                                                                                                                                                         1237
                                                                                                                                                                                                                                                                       428
                                                                                                                                                                                                                                                                                     1297
                                                                                                                                                                                                                                                                                                   448
                                                                                                                                                                                                                                                                                                                1357
                                                                                                                                                                                                                                                                                                                              468
                                                                                                                                                                                                                                                                                                                                                         488
                                                                                                                                                                                                                                                                                                                                                                      1477
                                                                                                                                                                                                                                                                                                                                                                                    508
                                                                                                                                                                                                                                                                                                                                                                                                               528
                                                                                                                                                                                                                                                                                                                                                                                                                            1597
                                                                                                                                                                                                                                                                                                                                                                                                                                          548
                                                                                                                                                                                                                                                                                                                                                                                                                                                        1657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                588
      6 B
                            원 수 명
                                                                      8 8 8
                                                                                                              $ B $ B $ B $
                                                                                                                                                                                                                                                                                                                                                                  6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                         8 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ें
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ⋧
                                                                                                                                                                                                   519
                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAsp---HisValVal 208
                                                                                                                                                                                                                               TCTTCTCCTCCTCCGTCGTCAACTAATTCAACTCCTCCTCCTCCTTCTTCTTTA 180
                                                                                                                                                                                                                                                                                                                                    GluGlyGlySerProArgProProSerSer-----ProSerProProSerProSerSer 131
                                                                                                                                                                                                                                                                                                                                           ---GGATCTACTCCTAGAACTCCATCAAACACTAAACCGTCGCCGCCGCTCTGATTCTTCC 399
                                                                                                                                                                                                                                                                                                                                                               169
                                                                                                                                                                                                                                                                                                          ProProThr -- - ArgAsnProProProSerValProGlyProProSerAsnProSerArg 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProProPro---PheMetSerSerSerGlyGlySerAspTyrSerAspArgProValLeu 247
                                                                                                                                                                  11
                                                                                                                                                                              9
                                                                                                                                                                                             AsnSerThrThrThrProProProAla ---- SerAlaProProThrThrPro 35
                                                                                                                                                                                                                       54
                                                                                                                                                                                                                                                  74
                                                                                                                                                                                                                                                                              94
                                        S
                                                                                                                                                                  CTCCTTCTTCTTCCTCCTCCTCCTCTGGATCTTTAACT-----CCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                 SerSerProPro---ProSerThrIleProThrSerProProProSerArgSer
                                                                                                                                                                                                                                                   ThrProSerAlaProProProSerProProThrProSerThrProGlySerProProPro
                                                                                                                                                                                                                                                                               LeuProGlnProSerProProAlaProThrThrProGlySerProProAlaProValThr
                                                                                                                                                                                                                                                                                     CTTCCTCAACCTTCCCCCTCCGCTCCCATCACTCT---TCTCCACCGTCTCCCACACA
                                                                                                                                                                                                                                                                                                                  11eValThrLeuIleCysLeuLeuCysLysLysArgArgArg-----AspGluGlu
                                                                                                                                                                                                                                                                                                                                                                                                                            GCTGCTTACTATGTTCCTCCTCCTCCTCCTCTGTCCCAAAGCTGGAGGACCTTACGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AspAlaTyrTyrValProProProProProGlyProLysAlaGlyGlyProTyrGly
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                         8
                                        Haffani,
                                                                                                    1959
574
24
41
21
12
                                                                                                    Length:
Matches:
Conservative:
Mismatches:
Indels:
                                         ٠.

    1959
/organism="Arabidopsis thaliana"
/mol_type="unassigned DNA"
/db_xref="teaxon:3702"

                  Goring, D., Silva, N. and Haffani, Y.Z.
Increasing plant seed production
Patent: Wo 03072763-A 36 04-SEP-2003;
Goring, Daphne (CA); Silva, Nancy (CA)
Location/Qualifiers
                                                                                                                                                     (1-1959)
                                                                                                                                                     x AX825738
                                                                                                    1.23e-63
2936.50
90.61%
86.97%
85.04%
                                                                                                                                                     US-10-086-464-2 (1-647)
                                                                                                                Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                              Scores:
                                                                                                                                                                                                         61
                                                                                                                                                                                                                       36
                                                                                                                                                                                                                                                  55
                                                                                                                                                                                                                                                                                                         95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       229
                                                                                                                                                                                             18
                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                              75
                                                                                                                                                                                                                                                                                           229
                                                                                                                                                                                                                                                                                                                       286
                                                                                                                                                                                                                                                                                                                                     114
                                                                                                                                                                                                                                                                                                                                                  343
                                                                                                                                                                                                                                                                                                                                                               132
                                                                                                                                                                                                                                                                                                                                                                             400
                                                                                                                                                                                                                                                                                                                                                                                           152
                                                                                                                                                                                                                                                                                                                                                                                                        460
                                                                                                                                                                                                                                                                                                                                                                                                                      170
                                                                                                                                                                                                                                                                                                                                                                                                                                   520
                                                                                                                                                                                                                                                                                                                                                                                                                                                190
                                                                                                                                                                                                                                                                                                                                                                                                                                                              580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            209
                                                       Bource
                                                                                                     ..
90
             REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                              Alignment
                                               FEATURES
                                                                                                           Score:
                                                                                                                                                                  ò
                                                                                                                                                                            a
                                                                                                                                                                                        6 8 6 8 6
```

1116 1176 1296 1356 1416 1476 1536 1056 1596 1716 387 347 447 467 507 756 267 816 287 876 307 936 327 367 407 427 487 527 547 267 607 LysLysPheArgLysMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSer GGTAGTGGGTCAGGGAGAGAGAGAGTTTCAGGCTGAGGTTGAGATCATTAGCAGAGTTCAT HisArgHisLeuValSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuVal LeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsn ProProProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGlu LeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGly GlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHis AspPheLysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThr GCAAGTGGAAAGCTCACAGAAAAGTCTGACGTTTTCTCATTTGGCGTTGTACTTTTGGAA AspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAla AspAlaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAla AlaSerGlyLysLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGlu ValTyrSerSerTyrGlyGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMet

g

ò

g ઠે

```
/protein_id="AAB37759.1"

/db_xref="G1:30725444"

/db_xref="G1:30725444"

/db_xref="G1:30725444"

/db_xref="G1:30725444"

/db_xref="G1:30725474"



/db_xref="G1:30725474"

/d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HEDCNPKI I HRDI KASNI I I DFKFEAKVADFGLAKTASDTNTHVSTRVMGTFGYLAPE
YAASGKLTEKSDVFS FGVVL LEL I TGRR PVDANNVYVDDSL VDWARPL LNRASEEGDF
EGLADSKMGNEYDREEMARWVACAAACVRHSARRRPRMSQI VRALEGNVSLSDLNEGM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RPGHSNVYSSYGGSTDYDTSQYNDDMIKFRKMALGTQEYGTTGEYSNPTSDYGLYPSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61 AACTCGACAACCACCACTCCTCCAGCAGCCTCTTCTCCTCCTCCACCACACTCCT 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181 CCTCCTTCTTCTTCCTCCTCCTCCTCCTGGATCTTTAACT------CCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        152 IleValThrLeuIleCysLeuLeuCysLysLysLysArgArgArg-----AspGluGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 Argricacagogocorcricasogocacracacarcaccarcricasocorcricacaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AsnSerThrThrThrProProProAla ----SerAlaProProThrThrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerSerProProPro---ProSerThr1leProThrSerProProSerSerArgSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  55 ThrproSerAlaProProProSerProProThrProSerThrProGlySerProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProProThr --- ArgAsnProProProSerValProGlyProProSerAsnProSerArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              286 CCCTCAAACCCTCGAAGCCCTCCATCTCCTAACCAAGGACCACCAAACACTCCCTCA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AspGlyLeuSerThrGlyValValValGlyIleAlaIleGlyGlyValAlaLeuLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     170 AspAlaTyrTyrValProProProProProProGlyProLysAlaGlyGlyProTyrGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   yThr------GlySerProProSerProFer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LeuProGlnProSerProProAlaProThrThrProGlySerProProAlaProValThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         114 GluGlyGlySerProArgProProSerSer-----ProSerProSerProSerSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         520 GCTGCTTACTATGTTCCTCCTCCTCCTCCATCTGGTCCCAAAGCTGGAGGACCTTACGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1959
574
24
41
21
12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SSSEGQATREMEMGKIKKTGQGYSGPSL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="compared to genome"
/replace="t"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps:
                                   note="unknown protein'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-086-464-2 (1-647) x BT008400 (1-1959)
                                                                                                              'product="At3g24550"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MetSerSerAlaProSerProGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1.23e-63
2936.50
90.61%
86.97%
85.04%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment
CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 (bases 1 to 1959)
Cheuk, R., Chen, H., Kim, C.J., Shinn, P., Bowser, L., Carninci, P., Dale, J.M., Hayashizaki, Y., Hsuan, V., Kishida, J., Jones, T., Kamiya, A., Karlin-Neumann, G., Kawai, J., Lam, B., Lih, J., Miranda, M., Narusaka, M., Nguyen, M., Onodera, C.S., Palm, C.J., Quach, H.L., Sakurai, T., Satou, M., Seki, M., Southwick, A., Toriumi, M., Wong, C., Wu, H.C., Yamada, K., Yu, G., Yuan, S., Shinozaki, K., Davis, R.W., Arabidopsis ORF clones
Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cheuk, R., Chen, H., Kim, C.J., Shinn, P., Bowser, L., Carninci, P., Dale, J.M., Hayashizaki, Y., Hsuan, V.W., Ishida, J., Jones, T., Dale, J.M., Karlin-Neumann, G., Kawai, J., Lam, B., Lin, J., Miranda, M., Narusaka, M., Nguyen, M., Onodera, C.S., Palm, C.J., Quach, H.L., Sakutrai, T., Satol, M., Seki, M., Southwick, A., Toriumi, M., Wong, C., Theologis, A. and Ecker, J.G., Yuan, S., Shinozaki, K., Davis, R.W., Theologis, A. and Ecker, J.G., Vann, S., Shinozaki, K., Davis, R.W., Direct Submission

Direct Submission
Submitted (15-MAY-2003) Salk Institute Genomic Analysis Laboratory Submitted (15-MAY-2003) Salk Institute Galomic Analysis Laboratory Biological Studies, 10010 N. Torrey Pines Road, La Jolla, CA 92037,
                                                                                                                                                                                                                             1837 AATCCAACCAGTGACTACGGACTGTACCCGTCTGGTTCAAGCAGTGAAGGTCAAGCCACA 1896
   1777 ATAAAGTTTAGGAAAATGGCTCTTGGAACTCAAGAATACGGCACAACCGGCGAGTACAGT 1836
                                                                                                                                                                                                                                                                                                                                                                                                                                                               PLN 15-MAY-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cheuk, R. (SSP/Salk) and Seki, M. (RIKEN GSC) contributed equally to this work. Shinozaki, K. (RIKEN GSC) and Ecker, J.R. (SSP/Salk) contributed equally to this work as PIs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The discrepancy does not affect the protein sequence.

RIKEN Genomic Sciences Center (GSC) members carried out the collection and clustering of RAFL CDNAS (RAFL CDNA : 'RIKEN trabidopsis Full-Length CDNA') : Seki,M., Narusaka,M., Ishida,J., Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai,J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The Salk, Stanford, PGEC (SSP) Consortium members constructed and sequenced the pUNI (ORF) clones using the RAFL cDNAs: Cheuk, R., Chen, H., Kim, C.J., Shinn, P., Bowser, L., Chan, M.M., Chang, C.M., Dale, J.M., Hsuan, V.W., Jones, T., Karlin-Neumann, G., Lam, B., Lee, J.M., Lin, J., Miranda, M., Nguyen, M., Onodera, C.S., Palm, C.J., Quach, H.L., Southwick, A., Tang, C.C., Toriumi, M., Wong, C., Wu, H.C., Tang, C., Wu, H.C., Tang, C., Toriumi, M., Wong, C., Wu, H.C., Tang, C., Wu, H.C., Tang, C., Toriumi, M., Wong, C., Wu, H.C., Tang, C.,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Tracheophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryofa; Viridiplantae; Streptophyta; Embryophyta; Tracheo
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           BT008400 1959 bp mRNA linear Arabidopsis thaliana At3g24550 gene, complete cds. BT008400.1 GI:30725473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /ecotype="Columbia"
/note="This clone is in pUNI 51"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FLI CDNA.
Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      organism="Arabidopsis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /mol_type="mRNA"
/db xref="taxon:3702"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'clone="U17522"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            chromosome="3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ecker, J.R
                                                                                                                                                                                                                                 628
                                                                                                                                                                                                                                                                                                            1897
                                                                               608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                    RESULT 6
BT008400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMMENT
```

607

1896

627

8 B 8

g

음 중 음

8 6 6 6

8 & 8 &

ያ ያ

g

ઠે

8 8 8

g

8 6

₹ g 8 8 유

ద

ઠે

ઠે

8 è

ઠે

```
Arabidopsis thaliana (thale cress)
Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
Entarjous, Viridiplantae, Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
rosids; eurosids II; Brassicales; Brassicaceae, Arabidopsis.

I (bases 1 to 2080)
Tripp,M.; Southwick,A.; Karlin-Neumann,G.; Nguyen,M.; Miranda,M.;
Rami,C.J.; Bowser,L.; Jones,T.; Banh,J.; Carninci,P.; Chen,H.;
Cheuk,R.; Chung,M.K.; Hayashizaki,Y.; Ishida,J.; Kamiya,A.;
Rawai,J.; Kim,C.; Lin,J.; Liu,S.Y.; Narusaka,M.; Pham,P.K.;
Sakano,H.; Sakurai,T.; Satou,M.; Seki,M.; Shinn,P.; Yamada,K.;
Direct Submission
Submitted (01-JUL-2002) DNA Sequencing and Technology Center,
Stanford University, 855 California Avenue, Palo Alto, CA 94304,
                                                                                                                                                                                                                                                                                                           07-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 equally
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ishida, J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Arabidopsis thaliana"
/mol_type="mRNA"
/db xref="taxon:3702"
/db xref="taxon:3702"
/clone="10568"
/ecotype="Columbia"
/note="This clone is in pENTR/SD-dTopo This is a cloned PCR product using RIKEN clone RAFL09-06-A17 (AY059901) as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The Salk, Stanford, PGEC (SSP) Consortium members constructed and sequenced the pUNI (ORF) clones using the RAFL cDNAs: Tripp,M., NGUYEn,M., Southwick,A., Karlin-Neumann,G., Lam,B., Miranda,M., Palm,C.J., Bower,L., Johes,T., Bahh,J., Chen,H., Cheuk,R., Chung,M.K., Kim,C., Lin,J., Liu,S.X., Pham,P.K., Sakano,H., Shinn,P., Yamada,K., Ecker,J., Theologis,A. and Davis,R.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                      linear PLN 07-AUG-;
protein mRNA, complete
                                                                                                                                                                                                                                                   GTATACAGCTCATATGGAGGAAGGACAGACTATGACACGAGCCAATACAACGACGACGACGAG
                                                                                                                                         LysLysPheArgLysMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSer
                                                                                                                                                                   AsnProThrSerAspTyrGlyLeuTyrProSerGlySerSerSerGluGlyGlnThrThr
                                                            nTyrAsnGluAspMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tripp, M, (SSP/Stanford) and Seki, M. (RIKEN GSC) contributed to this work. Shinozaki, K. (RIKEN GSC) and Davis, R.W. (SSP/Stanford) contributed equally to this work as PIs. 1.2098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          out
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The RIKEN Genomic Sciences Center (GSC) members carried out collection and clustering of RAFL cDNAs (RAFL cDNA: 'RIKEN Arabidopsis Full-Length cDNA'): Seki,M., Narusaka,M., Ish Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai, J., Hayashizaki,Y. and Shinozaki,K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 e-mail for correspondence: arab@sequence.stanford.edu
                                                            ValTyrSerSerTyrGlyGlySerThrAspTyrAspSerSerGl
                                                                                                                                                                                                                                                                                                                                                                                                                                      AY128792 2098 bp mRNA
Arabidopsis thaliana protein kinase-like
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AY128792
AY128792.1 GI:22136227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       template"
                                                                                                     1717
                                                                                                                                                                                                                                                                                                                                                    1897
                       1657
                                                              268
                                                                                                                                              588
                                                                                                                                                                                                                             608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                AY128792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                               8
                                                                                          8 B
                                                                                                                                                                        셤
                                                                                                                                                                                                                       8 8
                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                ਨੇ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATGGAATGGAGTACTAGATTGAAGATTGCTCTTTGGATCTGCTAAAGGACTTTCATATCTT 1176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCAAGTGGAAAGCTCACAGAAAAGTCTGACGTTTTCTCATTTGGCGTTGTACTTTTGGAA 1416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGGCTTGTGTTCGCCATTCAGCTCGCCGCAGACCTCGCATAGAGCCAGATAGTACGGGC 1656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTTATTACTGGGGGGGCCCTGTTGATGCGAACAATGTCTATGTAGATGACAGCTTAGTT 1476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AspPheLysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThr 427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAla 447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AlaSerGlyLyBLeuThrGluLyBSerAspValPheSerPheGlyValValLeuLeuGlu 467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          487
                                                                                                     ProProPro---PheMetSerSerGlyGlySerAspTyrSerAspArgProValLeu 247
                                                                                                                                                                                         ProProProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGlu 267
                                                                                                                                                                                                                                                                           CCTCCACCATCTCCAGGGCTTGTGTTAGGCTTTTCTAAAAGCACTTTCACTTATGAGGAG 816
                                                                                                                                                                                                                                                                                                                              LeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGly 287
                                                                                                                                                                                                                                                                                                                                                                         876
                                                                                                                                                                                                                                                                                                                                                                                                                TyrValHisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysVal 307
                                                                                                                                                                                                                                                                                                                                                                                                                                        GlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHis 327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MetGluTrpSerThrArgLeuLyslleAlaLeuGlySerAlaLysGlyLeuSerTyrLeu 387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HisGluAspCysAsnProLysIleIleHisArgAspIleLysAlaSerAsnIleLeuIle 407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAla 507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGTAGTGGTCAGGGAGAGAGAGAGTTTCAGGCTGAGGTTGAGATCATTAGCAGAGTTCAT 996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsn 567
                   ThrSerLeuProProProLysAlaProSerProProArgGlnProProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AACACTCATGTATCTACACGCGTGATGGGAACCTTTGGGTATTTGGCTCCGGAATATGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HisArgHisLeuValSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TyrGluPheValProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuileThrGlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AspalaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaAlaCysValArgHisSerAlaArgArgArgProArgMetSerGlnIleValArgAla
                                                                                                                                                                                                                                                                                                                                                                       Trigrogadaderaaragerrereraagerraarreraagaagagagagerreger
GlyGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1117
                                                                                                                      640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     408
                                                                                                                                                             229
                                                                                                                                                                                                                                               248
                                                                                                                                                                                                                                                                                                                                                                                                                                                         877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1537
                                      580
                                                                               209
                                                                                                                                                                                                      697
                                                                                                                                                                                                                                                                                        757
                                                                                                                                                                                                                                                                                                                                268
                                                                                                                                                                                                                                                                                                                                                                         817
                                                                                                                                                                                                                                                                                                                                                                                                                    288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            508
```

```
ProProPro-
                                                                                                                                                                                                                                   Ή
                                                                                                                                                                                                                                                                                                                                                                                                                                           1597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1657
 540
                           697
                                        248
                                                                  268
                                                                                              288
                                                                                                           877
                                                                                                                        308
                                                                                                                                     937
                                                                                                                                                   328
                                                                                                                                                                997
                                                                                                                                                                              348
                                                                                                                                                                                            1057
                                                                                                                                                                                                         368
                                                                                                                                                                                                                     1117
                                                                                                                                                                                                                                    388
                                                                                                                                                                                                                                                1177
                                                                                                                                                                                                                                                             408
                                                                                                                                                                                                                                                                          1237
                                                                                                                                                                                                                                                                                         428
                                                                                                                                                                                                                                                                                                     1297
                                                                                                                                                                                                                                                                                                                   448
                                                                                                                                                                                                                                                                                                                                1357
                                                                                                                                                                                                                                                                                                                                              468
                                                                                                                                                                                                                                                                                                                                                           1417
                                                                                                                                                                                                                                                                                                                                                                         488
                                                                                                                                                                                                                                                                                                                                                                                      1477
                                                                                                                                                                                                                                                                                                                                                                                                    508
                                                                                                                                                                                                                                                                                                                                                                                                                 1537
                                                                                                                                                                                                                                                                                                                                                                                                                                                        548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1717
                                                     757
                                                                                                                                                                                                                                                                                                                                                                                  8 6 8 6 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ద
8 4 6 4 6 6
                                                                                            8 8 8
                                                                                                                                 g
                                                                                                                                                  6 6 6 6 6 6 6 6 6 6 6 6
                                                                                                                                                                                                                                                                                                                            8 8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                   /translation="MSTAPSPGTTPSDSPPSPPTNSTTTPPPPAASSPPTTTPSSPP
PSPSGTWARTSPPSSSLPPSPSOSSLPPELPGPSPSBSTTSPPSSPPTTSBSPP
PSPSGPPSPSTPSTPSTPSTPSTPSPSDSSDGLSTGVVOGTAIGGVALLVILTLICL
LCKKKRRRRHDDBAAYVPPPPPSGPKAGGPYGQQQYWQQQNASRPSDNHVVTSLPP
PKPSPPRFKPPPPPPRAMSSGGSPSSBLPVPLPPSPSGTVTGFSRSTTTELSP
TNGFSBANLLGQGGGYVHKGILPSGKSVANKQLKAGSGGGRREFQAEVEILSRA
HUNSLIGYCMAGVQRLLVYEFVDNNLLEFHLHGKGRPTMEWSTRLKIALGSAKGLSYL
                                                                 HEDCNEKI IHRDIKASNI LIDPKFEAKVADFGLAKI ASDTNITHVSTRVMGTFGYLAPE
YAASGKLTEKSDVFGFGVVLLEL ITGRRPVDANNVYDDSLVDWARPLINRASEEGDF
EGADOSKWGNEYDREEWARWACAAACVRHSARRRPRMSQI VRALEGNVSLSDLNEGM
RPGHSNVY SSYGGSTDYDTGOYNDDM KFRKWALGTQEYGTTGEYSNPTSDYGLYPSG
SSSEGQATREMEMGKKKTGGQSYGPSL"
                                                                                                                                                                                                                            120
                                                                                                                                                                                                                                                                                 228
                                                                                                                                                                                                                                                                                                            285
                                                                                                                                                                                                                                                                                                                          113
                                                                                                                                                                                                                                                                                                                                                                                             459
                                                                                                                                                                                                                                                                                                                                                                                                          169
                                                                                                                                                                                                                                                                                                                                                                                                                                     189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          228
                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                     131
                                                                                                                                                                                                                                                                                                                                                                               151
                                                                                                                                                                                                 9
                                                                                                                                                                                                                35
                                                                                                                                                                                                                                         54
                                                                                                                                                                                                                                                                    74
                                                                                                                                                                                                                                                                                              94
                                                                                                                                                                                                                                         ProProThr---ArgAenProProProSerValProGlyProProSerAenProSerArg
                                                                                                                                                                                                                                                                                                                                                             ---GGATCTACTCCCTAGAACTCCATCAAACACTAAAACCGTCGCCGCCGTCTGATTCTTCC
                                                                                                                                                                                           AsnSerThrThrThrThrProProAla ----SerAlaProProThrThrPro
                                                                                                                                                                                                                                                                                              AspGlyLeuSerThrGlyValValValGlyIleAlaIleGlyGlyValAlaLeuLeuVal
                                                                                                                                                                                                                                                                                                                                                                                       GATGGATTGTCTACCGGAGTTGTGGTAGGAATCGCCATTGGAGGAGGAGTCGCTATTCTTGTT
                                                                                                                                                                                                                                                                                                                                                                                                          | IleValThrLeuIleCysLeuLeuCysLysLysLysLysBrgArgArg-----AspGluGlu
                                                                                                                                                                                                                                                                                                                                                                                                                  GlyGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAsp --- HisValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GluGlyGlySerProArgProProSerSer-----ProSerProProSerProSerSer
protein'
                                                                                                                       2098
574
24
41
21
                                                                                                                                                                                                                                                                            CCTCCTTCTCTTCCTCCTCCATCTCTCTCTTAACT-
                                                                                                                        Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
product="protein kinase-like
protein_id="AAM91192.1"
db_xref="G1:22136228"
                                                                                                                                                                        (1-2098)
                                                                                                                                                                                    MetSerSerAlaProSerProGlyThr-
                                                                                                                                                                        US-10-086-464-2 (1-647) x AY128792
                                                                                                                        1.29e-63
2936.50
90.61%
86.97%
85.04%
                                                                                                                                     Similarity:
                                                                                                                  Scores:
                                                                                                                                                                                    H
                                                                                                                                                                                                 ч
                                                                                                                                                                                                                                                                                                                                                                                                                                                                190
                                                                                                                                                                                                                18
                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                          36
                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                    55
                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                75
                                                                                                                                                                                                                                                                                                             229
                                                                                                                                                                                                                                                                                                                          95
                                                                                                                                                                                                                                                                                                                                        988
                                                                                                                                                                                                                                                                                                                                                     114
                                                                                                                                                                                                                                                                                                                                                                  343
                                                                                                                                                                                                                                                                                                                                                                                132
                                                                                                                                                                                                                                                                                                                                                                                             400
                                                                                                                                                                                                                                                                                                                                                                                                          152
                                                                                                                                                                                                                                                                                                                                                                                                                        160
                                                                                                                                                                                                                                                                                                                                                                                                                                     170
                                                                                                                                                                                                                                                                                                                                                                                                                                                  520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          503
                                                                                                                                     Percent Simil
Best Local Si
Query Match:
DB:
                                                                                                                         ..
No.:
                                                                                                                  Alignment
                                                                                                                                Score:
                                                                                                                                                                                    g
```

HisarghisLeuValSerLeuValGlyTyrCysIlealaGlyAlaLysArgLeuLeuVal GlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHis sGludspCysAsnProLys1leIleHisArgAspIleLysAlaSerAsnIleLeuIle GATTTCAAATTTGAAGCTAAGGTTGCTGACTTTGGTCTTGCTCAGATTGCTTCTGATAGA GCAAGTGGAAAGCTCACAGAAAAGTCTGACGTTTTCTCATTTGGCGTTGTACTTTTGGAA GCGCTTGTGTTCGCCATTCAGCTCGCCGCAGACCTCGCATAGAGCCAGATAGTACGGCC LeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsn ProProProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGlu TIGTCGAGAGCTACTAATGGCTTCTCTGAGGCTAATTTGTTAGGACAAGGAGGTTTGGT GGTAGTGGTCAGGGAGAGAGAGAGTTTCAGGCTGAGGTTGAGATCATTAGCAGAGTTCAT AspPheLysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThr AsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAla AlaSerGlyLysLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGlu uGlyLeuAla AspAlaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAla AlaalaCysValArgHisSerAlaArgArgArgProArgMetSerGlnIleValArgAla ACGTCATTG----CCACCACCTAAGCCTCCATCTCCACCACGAAAACCTCCGCCACCT LeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGly MetGluTrpSerThrArgLeuLy8IleAlaLeuGlySerAlaLy8GlyLeuSerTyrLeu rSerAspArgProValLeu AspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGl ---PheMetSerSerSerGlyGlySerAspTy

임 δ 셤 ò

608

628 1897

LOCUS DEFINITION ACCESSION VERSION KEYWORDS SOURCE ORGANISM

RESULT 8 AY056788

REFERENCE AUTHORS

```
/protein_id="AAL10479.1" --
| Aboutein_id="AAL10479.1" --
| Aboutein_id="AAL10479.1" --
| Aboutein_id="AAL10479.1" --
| Aboutein_id="AAL10474.1" --
| Aboutein="AAL10474.1" --
| Aboute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TNGFSEANILGQGGFGYVHKGILPSGKEVAVKQLKAGSGQGEREPQAEVEIISRVHHR
HLVSLIGYCMAGVQRLLVYEFVPNNNLEFHLHGKGRPTMEMSTRLKIALGSAKGLSYL
HEDCNPKIIHRDIKASNILIDFKFEAKVADFGLAKIASDTNTHVSTRVMGTFGYLAPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             YAASGKLTEKSDVFSFGVVLLELITGRRPVDANNVYVDDSLVDWARPLLNRASEBGDF
EGLADSKWGNBYDREBNARNYACAAA(VRHSARRRPRNSQI VRALEGSVSLSDLNBGM
RPGHSNVYSSYGGSTDYDTSQYNDDMIKFRKWALGTQBYGTTGBYSNPTSDYGLYPSG
SSSEQGATREMEMGKIKKTGGQSYGPSL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cecreaaaceredaagecerecarereraaceaagacacaacaacreerea--- 378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IleValThrLeuIleCysLeuLeuCysLysLysLysArgArgArg-----AspGluGlu 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AspalaTyrTyrValProProProProProPyoGlyProLysAlaGlyGlyProTyrGly 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     95 ProProThr -- ArgAsnProProProSerValProGlyProProSerAsnProSerArg 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ---GGATCTACTCCTAGAACTCCATCAAACACTAAACCGTCGCCGCCGTCTGATTCTTCC 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LeuProGlnProSerProProAlaProThrThrProGlySerProAlaProValThr 94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  37 ATGTCCACAGGGGCGTCTCCAGGCACTACTCCATCACCATCTCCACGGGTCTCCTCCCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AACTCGACAAACCACCTCCTCCTCCAGCAGCCTCTTCTCCTCCTCCCCACCACAACTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTTCCTCAACCTTCCCCCTCCGCTCCCATCACTCT---TCTCCACCGTCTCCACCACACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AsnSerThrThrThrProProProAla----SerAlaProProThrThrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SerSerProProPro---ProSerThr1leProThrSerProProProSerSerArgSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             55 ThrProSerAlaProProProSerProProThrProSerThrProGlySerProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MetSerSerAlaProSerProGlyThr-----GlySerProProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ceréciriererecience de la consequence del la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence del la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la consequence de la co
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GluGlyGlySerProArgProProSerSer----ProSerProProSerProSerSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AspGlyLeuSerThrGlyValValValGlyIleAlaIleGlyGlyValAlaLeuLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2116
24
24
21
21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                      note="putative protein kinase"
/clone="RAFL09-19-J24 (R14362) "
                                                                                                                                                                                                              /codon_start=1
/product="AT3g24550/MOB24_8"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-086-464-2 (1-647) x AY056788 (1-2116)
                                   /ecotype="Columbia"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1996. .2116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1.3e-63
2936.50
90.61%
86.97%
85.04%
                                                                                                                         .1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pred. No.:
                                                                                5'UTR
CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3'UTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    윤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.

1 (bases 1 to 2116)

1 (bases 1 to 2116)

1 (bases 1 to 2116)

1 Cheuk, R., Chen, H., Yim, C.J., Koesema, E., Meyers, M.C., Banh, J., Bank, S., Jones, T., Kamiya, A., Karlin-Neumann, G., Kawai, J., Lam, B., Lee, J.M., Lin, J., Lin, S.X., Miranda, M., Nguyen, M., Ondera, C.S., Palm, C.J., Pham, P.K., Ouach, H.L., Sakurai, T., Satou, M., Seki, M., Southwick, A., Tang, C.C., Toriumi, M., Yamanda, K., Yamamura, Y., Yu, G., Yu, S., Shinozaki, K., Arabidopsis cDNA clones

L Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Creuk, R., Chen, H., Kim, C.J., Koesema, E., Meyers, M.C., Banh, J.,
Bowser, L., Carninci, P., Dale, J.M., Goldsmith, A.D., Hayashizaki, Y.,
Ishida, J., Jiang, P.X., Jones, T., Kamiya, A., Karlin-Neumann, G.,
Kawai, J., Lam, B., Lee, J.M., Lin, J., Lilu, S.X., Miranda, M.,
Narusaka, M., Nguyen, M., Onodera, C.S., Palm, C.J., Pham, P.K.,
Quach, H.L., Sakurai, T., Satou, M., Seki, M., Southwick, A., Tang, C.C.,
Toriumi, M., Yamada, K., Yamamura, Y., Yu, G., Yu, S., Shinozaki, K.,
Davis, R.W., Theologis, A. and Ecker, J.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The Salk, Stanford, PGEC (SSP) Consortium members carried out the sequencing and annotation of the RAFL cDNAs: Cheuk.R., Chen.H., Kim,C.J., Koesema,E., Meyers,M.C., Shinn,P., Banh,J. Bowser,L., Lam,C.J., Koeldemith,A.D., Jiang,P.X., Jones,T., Karlin-Neumann,G., Lam,B., Lee,J.M., Lin,J., Liu,S.X., Miranda,M., Nguyen,M., Onodera,C.S., Palm,C.J., Pham,P.K., Quach,H.L., Southwick,A., Tang,C.C., Toriumi,M., Yamada,K., Yamamura, Y., Yu,G., Yu,S., Davis,R.W., Theologis,A., and Ecker,J.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                  1956
                                                                                                                                                                                                                                                                                                                                            647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            08-OCT-2001
                                                                                                                                                                 627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Direct Submission
Submitted (11-SEP-2001) Salk Institute Genomic Analysis Laboratory
Submitted (11-SEP-2001) Salk Institute for
(SIGNAL), Plant Biology Laboratory, The Salk Institute for
Biological Studies, 10010 N. Forrey Pines Road, La Jolla, CA 92037,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RIKEN Genomic Sciences Center (GSC) members carried out the collection and clustering of RAFL cDNAs (RAFL cDNA; 'RIKEN Arabidopsis Full-Length cDNA'): Seki,M., Narusaka,M., Ishida,J., Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai,J., Hayashizaki,Y. and Shinozaki,K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ដ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cheuk, R. (SSP/Salk) and Seki, M. (RIKEN GSC) contributed equally this work. Shinozaki, K. (RIKEN GSC) and Ecker, J.R. (SSP/Salk) contributed equally to this work as PIs. Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                   1837 AATCCAACCAGTGACTACGGACTGTACCGTCTGGTTCAAGCAGTGAAGGTCAAGCCACA
LystysPheArgtysMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSer
                                                 AsnProThrSerAspTyrGlyLeuTyrProSerGlySerSerSerGluGlyGlnThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AYO56788 2116 bp mRNA linear PLN 08
Arabidopsis thaliana AT3g24550/MOB24_8 mRNA, complete cds.
AY056788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1. .2116
/organism="Arabidopsis thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FLI CDNA.
Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /mol_type="mRNA"
/db_xref="taxon:3702"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AY056788.1 GI:15983764
FLI_CDNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (bases 1 to 2116)
```

TITLE JOURNAL REFERENCE AUTHORS

TITLE JOURNAL

COMMENT

source

PEATURES

607

627

647

6 B 6 B 6 B 6

g

8 8 8

g

```
Arobyol 2188 bp mRNA linear PLN 04-NOV-2001
Arabidopsis thaliana protein kinase-like protein (MOB24.13) mRNA,
complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Eukaryota; Viridiplantae; Streptophyta; Eukaryota; Viridiplantae; Streptophyta; eudicotyledons; core eudicots; rosida; eurosida II; Brassicales; Brassicaceae; Arabidopsis.

E 1 (bases 1 to 2188)
S Nguyen, M. Karlin-Neumann, G., Southwick, A., Lam, B., Miranda, M., Palm, C.J., Bowser, L., Jones, T., Banh, J., Carninci, P., Chen, H., Chung, M.K., Hayashizaki, Y., Ishida, J., Kamiya, A., Kawai, J., Kim, C., Lin, J., Liu, S.X., Narusaka, M., Pham, P.K., Sakano, H., Sakurai, T., Satou, M., Seki, M., Shinn, P., Yamada, K., Shinozaki, K., Ecker, J., Theologis, A. and Davis, R.W.

Direct Submission
L Submitted (12-OCT-2001) DNA Sequencing and Technology Center, Stanford University, 855 California Avenue, Palo Alto, CA 94304,
                                                                                                                                                                                                                                                                                     1873 AATCCAACCAGTGACTACGGACTGTACCCGTCTGGTTCAAGCAGTGAAGGTCAAGCCACA 1932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Embryophyta; Tracheophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RIKEN Genomic Sciences Center (GSC) members carried out the collection and clustering of RAFL cDMAs (RAFL cDMA: 'KIKEN trabidopsis Full-Length cDMA'): Seki,M., Narusaka,M., Ishida,J., Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai,J., Hayashizaki,Y. and Shinozaki,K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The Salk, Stanford, PGEC (SSP) Consortium members carried out the sequencing and annotation of the RAFL cDNAs: Nguyen,M., Southwick,A., Karlin-Neumann,G., Lam,B., Miranda,M., Palm,C.J., Bowser,L., Jones,T., Banh,J., Chen,H., Cheuk,R., Chung,M.K., Kim,C., Lin,J., Liu,S.X., Paman,P.K., Sakano,H., Shinn,P., Yamada,K., Ecker,J., Theologis,A. and Davis,R.W.
                                        1693 TTAGAAGGAAATGTATCGCTGTCTGATCTTAACGAAGGGATGAGACGGGTCGACAGCAAC
                                                                                                                      AsnProThrSerAspTyrGlyLeuTyrProSerGlySerSerSerGluGlyGlnThrThr
                                                                                                                                                                                LysLysPheArgLysMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSer
                                                                                                                                                                                                                       1813 ATAAAGTTTAGGAAAATGGCTCTTGGAACTCAAGAATACGGCACAACCGGCGAGTACAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Nguyen,M, (SSP/Stanford) and Seki,M. (RIKEN GSC) contributed equally to this work. Shinozaki,K. (RIKEN GSC) and Davis,R.W. (SSP/Stanford) contributed equally to this work as PIs. Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     e-mail for correspondence: arab@sequence.stanford.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone="RAFL09-06-A17"
/note="This clone is in pBluescript"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1. .2188
/organism="Arabidopsis thaliana'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FLI CDNA.
Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /mol_type="mRNA"
/db_xref="taxon:3702"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="MOB24.13"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AY059901
AY059901.1 GI:16649062
                                                                                                     268
                   548
                                                                                                                                                                                  588
                                                                                                                                                                                                                                                                                                                                                                                                                                                       AY059901
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                   Ġ
                                                                                                                                                                                                                                                                                                요
                                             ద
                                                                                      ઠે
                                                                                                                                     유
                                                                                                                                                                                                              g
                                                                                                                                                                              ઠે
                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CACAGGCATTTGGTTTCTCTTTATTGGTTATTGTATGGCCGGTGTTCAAAGATTACTTGTC 1092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HisGluAspCysAsnProLysIleIleHisArgAspIleLysAlaSerAsnIleLeuIle 407
                                                                                                                                                                                                                                              792
                                                                                                                                                                                                                                                                                       267
                                                                                                                                                                                                                                                                                                                                                                       LeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGly 287
                                                                                                                                                                                                                                                                                                                                                                                                                                                    TyrvalHisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysVal 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              327
                                                                                                                                                                                                     GlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTTATTACTGGGGGGCGCCCTGTTGATGCGAACAATGTCTATGTAGATGACAGCTTAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCGCCTTGTGTTCGCCATTCAGCTCGCCGCAGACCTCGCATGAGCCCAGATAGTACGGGCG
GCTGCTTACTATGTTCCTCCTCCTCCATCTGGTCCCAAAGCTGGAGGACCTTACGGT
                                                                ProProProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGlu
                                                                                                                                                                                                                                                                                                             CCTCCACCATCTCCAGGGCTTGTGTTAGGCTTTTCTAAAAGCACTTTCACTTATGAGGAG
                                                                                                                                                                                                                                                                                                                                                                                               TTGTCGAGAGCTACTAATGGCTTCTCTGAGCTAATTTGTTAGGACAAGGAGGTTTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HisArgHisLeuValSerLeuValGlyTyrCyslleAlaGlyAlaLysArgLeuLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TyrGluPheValProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CATGAAGATTGCAAATCCGAAAATCATTCACCGTGATATTAAGGCGTCAAACATATTGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AspPhelysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GATTTCAAATTTGAAGGTAGGTTGCTGACTTTGGTCTTGCCCAAGATTGCTTCTGATACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AlaSerGlyLyBLeuThrGluLySSerAspValPheSerPheGlyValValLeuLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCAAGTGGAAAGCTCACAGAAAAGTCTGACGTTTTCTCATTTGGCGTTGTACTTTTGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AspTrpAlaArgProLeuLeuAsnArgAlaSerGluGluGlyAspPheGluGlyLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AspalaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AlaAlaCysValArgHisSerAlaArgArgArgProArgMetSerGlnIleValArgAla
                                    GlyGlnGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAsp---HisValval
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LeuileThrGlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1513
                                                                             919
                                                                                                                                                               9/9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           528
                                                                                                                      209
                                                                                                                                                                                                        229
                                                                                                                                                                                                                                                 733
                                                                                                                                                                                                                                                                                       248
                                                                                                                                                                                                                                                                                                                                                                         268
                                                                                                                                                                                                                                                                                                                                                                                                                                                           288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              468
                                                                                                                                                                                                                                                                                                                                                                                                                853
```

8 6 6 6 6 6

8 8 8 8

8 8 8

8 8 8

8 엄 ò 요

```
TTAGAAGGAAATGTATCGCTGTCTGATCTTAACGAAGGGATGAGACCGGGTCACAGCAAC
                                        rSerAspArgProValLeu
                                                                         ProProProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGlu
                                                                                 CCTCCACCATCTCCAGGGCTTGTGTTAGGCTTTTCTAAAAGCACTTTCACTTATGAGGAG
                                                                                                                                                    TATGTGCATAAAGGTATATTGCCTAGTGGGAAAGAAGTTGCTGTGAAACAGTTGAAAGCT
                                                                                                                                                                                    MetGluTrpSerThrArgLeuLys1leAlaLeuGlySerAlaLysGlyLeuSerTyrLeu
                                                                                                                                                                                                                                                                                                               HisGluAspCysAsnProLysIleIleHisArgAspIleLysAlaSerAsnIleLeuIle
                                                                                                                                                                                                                                                                                                                                                                                                                             GCAAGTGGAAAGCTCACAGAAAAGTCTGACGTTTTCTCATTTGGCGTTGTACTTTTGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTTATTACTGGGAGGGCCCCTGTTGATGCGAACAATGTCTATGTAGATGACAGCTTAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AlaalaCysValArgHisSerAlaArgArgArgProArgMetSerGlnIleValArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LeuGluGlyàsnValSerLeuSerAspLeuàsnGluGlyMetArgProGlyGlnSerAsn
        ThrSerLeuProProProLysAlaProSerProProArgGlnProProProProPro
                 LeualaargalaThrasnGlyPheSerGlualaasnLeuLeuGlyGlnGlyGlyPheGly
                                                                                                                   TTGTCGAGAGCTACTAATGGCTTCTCTGAGGCTAATTTTTTTAGGACAAGGAGGGTTTGGT
                                                                                                                                                                          GlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHis
                                                                                                                                                                                                            HisArgHisLeuValSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuVal
                                                                                                                                                                                                                                             TyrGluPheValProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThr
                                                                                                                                                                                                                                                                                       CATGAAGATTGCAATCCGAAAATCATTCACCGTGATATTAAGGCGTCAAACATATTGATT
                                                                                                                                                                                                                                                                                                                                                                                 AsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAla
                                                                                                                                                                                                                                                                                                                                                                                                 AACACTCATGTATCTACACGCGTGATGGGAACCTTTGGGTATTTGGCTCCGGAATATGCT
                                                                                                                                                                                                                                                                                                                                                                                                                 AlaSerGlyLysLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AspalaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LeulleThrGlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuVal
                                                                                                                                          --PheMetSerSerSerGlyGlySerAspTy
                                                                                                                                            4
                        671
                                         229
                                                         728
                                                                         248
                                                                                         788
                                                                                                          268
                                                                                                                          848
                                                                                                                                           288
                                                                                                                                                           908
                                                                                                                                                                           308
                                                                                                                                                                                            968
                                                                                                                                                                                                             328
                                                                                                                                                                                                                              1028
                                                                                                                                                                                                                                              348
                                                                                                                                                                                                                                                              1088
                                                                                                                                                                                                                                                                               368
                                                                                                                                                                                                                                                                                               1148
                                                                                                                                                                                                                                                                                                                388
                                                                                                                                                                                                                                                                                                                                1208
                                                                                                                                                                                                                                                                                                                                                 408
                                                                                                                                                                                                                                                                                                                                                                 1268
                                                                                                                                                                                                                                                                                                                                                                                  428
                                                                                                                                                                                                                                                                                                                                                                                                  1328
                                                                                                                                                                                                                                                                                                                                                                                                                  448
                                                                                                                                                                                                                                                                                                                                                                                                                                   1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                    468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        548
        509
        6 6 6 6 6
                                                                                     8 & 8
                                                                                                                                     8
                                                                                                                                                     8 6 8 6 8 6 8
                                                                                                                                                                                                                                                                                                                                                                                                                                              8686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                     CTTCCTCAACCTTCCCCCTCCGCTCCCATCACCCT---TCTCCACCGTCTCCCACCACA 316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ---GGATCTACTCCTAGAACTCCATCAAACACTAAACCGTCGCCGCCGTCTGATTCTTCC 430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                208
                                                                                                                                                                                                                                                                                     ABISETHITHITHITHIPPROPROPIOALA----SERALAPROPROPROTHITHIPPRO 35
                                                                                                                                                                                                                                                                                                                                         211
                                                                                                                                                                                                                                                                                                                                                                                                                           113
                                                                                                                                                                                                                                                                                                                                                                                                                                     AspGlyLeuSerThrGlyValValValGlyIleAlaIleGlyGlyValAlaLeuLeuVal 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----AspGluGlu 169
                                                                                                                                                                                                                                                                                                                                                                         ccrccricicricricriccricarcricricgarcriraacr-------criccr 259
                                                                                                                                                                                                                                                                                                                                                                                                                                                            GluGlyGlySerProArgProProSerSer-----ProSerProProSerProSerSer 131
                                                                                                                                                                                                                                                                     91
                                                                                                                                                                                                                                                                                                                        54
                                                                                                                                                                                                                                                                                                                                                         74
                                                                                                                                                                                                                                                                                                                                                                                          94
                                                                                                                                                                                                                                                                                                                       ---GlySerProProSerProProSer
                                                                                                                                                                                                                                                             ProProThr --- ArgAsnProProProSerValProGlyProProSerAsnProSerArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AspalaTyrTyrValProProProProProProGlyProLysAlaGlyGlyProTyrGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCTGCTTACTATGTTCCTCCTCCTCCTCCATCTGGTCCCAAAGCTGGAGGACCTTACGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlyGlnGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAsp---HisValVal
                                                                                                                                                                                                                                                                                                                                                                                          LeuProGlnProSerProProAlaProThrThrProGlySerProProAlaProValThr
                                                                                                                                                                          2188
574
24
41
21
                                                                                                                                                                          Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                     (1-2188)
                                                                                                                                                                                                                                                  Met.SerSerAlaProSerProGlyThr-
32. .1990
/gene="MOB24.13"
                 'codon start=1
                                                                                                                                                                                                                                      x AY059901
                                                                                                                                                                           1.33e-63
2936.50
90.61%
86.97%
85.04%
                                                                                                                                                                                                                                      (1-647)
                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
                                                                                                                                                                    Scores:
                                                                                                                                                                                                                                      US-10-086-464-2
                                                                                                                                                                                                                                                      ч
                                                                                                                                                                                                                                                                                                                                                                         212
                                                                                                                                                                                                                                                                                        18
                                                                                                                                                                                                                                                                                                        92
                                                                                                                                                                                                                                                                                                                        36
                                                                                                                                                                                                                                                                                                                                         152
                                                                                                                                                                                                                                                                                                                                                          55
                                                                                                                                                                                                                                                                                                                                                                                          75
                                                                                                                                                                                                                                                                                                                                                                                                          260
                                                                                                                                                                                                                                                                                                                                                                                                                           95
                                                                                                                                                                                                                                                                                                                                                                                                                                           317
                                                                                                                                                                                                                                                                                                                                                                                                                                                             114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               491
                                                                                                                                                                                                             Query Match:
DB:
                                                                                                                                                                    Alignment S
Pred. No.:
CDS
                                                                                                                                                    ORIGIN
                                                                                                                                                                                                                                                                                  요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8 8
                                                                                                                                                                                                                                                     ઠે
```

427

447

1267

407

1447

467

1507

487

1567

507

1627

527

1687

547

1747

567

1027

847

287 907 307 967 327

sGlnLeuLysVal

727 247 787 267 1087 367

347

1147

387

Q

ò g ें 셤

셤 े

```
113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            94
                                                                                                                                                                                                                                                                                                                                                                                                                                                 89
                                                                                                                                                                                                                                                                                                                                                                                                                                    30 ATGTCCACAGGGCGTCTCCAGGCACTACTCCATCACCATCTCCACCGTCTCCTCCCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            258 CTTCCTCAACCTTCCCCTCCGGTCCCATCACTCCT---TCTCCACCGTCTCCCACACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AspGlyLeuSerThrGlyValValValGlyIleAlaIleGlyGlyValAlaLeuLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AsnSerThrThrThrProProProAla ----SerAlaProProThrThrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerSerProProPro---ProSerThrlleProThrSerProProSerSerArgSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProProThr --- ArgAsnProProProSerValProGlyProProSerAsnProSerArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     152 IleValThrLeuIleCysLeuLeuCysLysLysLysArgArgArg-----AspGluGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ThrSerLeuProProProProLysAlaProSerProProArgGlnProProProProProPio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Acgreatre---ceaceacerasecerecarerecaceaceaaaacerecreecere
                                                                                                                                                                                                                                                                                                                                                                                                                     MetSerSerAlaProSerProGlyThr-----GlySerProProSerProProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LeuProGlnProSerProProAlaProThrThrProGlySerProProAlaProValThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GluGlyGlySerProArgProProSerSer----ProSerProProSerProSerSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlyGlnGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAsp---HisValVal
                                                                                                                                                                                                                                                                        Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                     (1-2190)
                                                                                                                                                                                                                                                                                                                                                                                     US-10-086-464-2 (1-647) x AY093065
                                                                                                                                                                                                                                                                      1.33e-63
2936.50
90.61%
86.97%
85.04%
                                                                                                                                                                                                                                                                                                    Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                            Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               190
                                                                                                                                                                                                                                                                                                                                                                                                                     Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             699
                                                                                                                                                                                                                                                                           Pred. No.:
                                                                                                                                                                                                                            DRIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ∂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                1867
                                                                                                                                                          AATCCAACCAGTGACTACGGACTGTACCCGTCTGGTTCAAGCTGAAGGTCAAGCCACA 1927
                                                                                                                                                                                                            1928 CGAGAAATGGAGATGGGAAAGATTAAGAAAACCGGTCAAGGTTATAGTGACCCTCTCTT 1987
                                                                                                                                                                                                                                                                                            PLN 21-APR-2002
                                                                                                                                                                                             647
                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta, Spermatophyta, Wiridiplantae, Streptophyta, Embryophyta, Tracheophyta, Spermatophyta, Magnoliophyta, eudicotyledons, core eudicots.

1 (Dases II, 2019)
Southwick, A., Karlin-Neumann, G., Nguyen, M., Lam, B., Miranda, M., Cheuk, R., Dowser, L., Jones, T., Banh, J., Carninci, P., Chen, H., Cheuk, R., Chung, M.K., Hayashizaki, Y., Ishida, J., Kamiya, A., Kawai, J., Kim, C., Lin, J. Liu, S.X., Narusaka, M., Pham, P.K., Sakano, H., Sakurai, T., Satou, M., Seki, M., Shinozaki, K., Ecker, J., Theologis, A. and Davis, R.W.
                                                                  607
                                                                                                                               627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RIKEN Genomic Sciences Center (GSC) members carried out the collection and clustering of RAFL cDNAs (RAFL cDNA : 'RIKEN trabidopsis Full-Length cDNA'): Seki,M., Narusaka,M., Ishida,J., Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai,J., Hayashizaki,Y. and Shinozaki,K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The Salk, Stanford, PGEC (SSP) Consortium members carried out the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Southwick, A., (SSP/Stanford) and Seki, M. (RIKEN GSC) contributed equally to this work. Shinozaki, K. (RIKEN GSC) and Davis, R.W. (SSP/Stanford) contributed equally to this work as PIB.

1. Cation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Center,
                                                                                                                                                                                                                                                                                            AY093065 2190 bp mRNA linear PLN 21-APR-?
Arabidopsis thaliana unknown protein (At3g24550) mRNA, complete
   588 LystysPheArgiysMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSer
                                                                                                  1808 ATAAAGTTTAGGAAAATGGCTCTTGGAACTCAAGAATACGGCACAACCGGCGAGTACAGT
                                                                                                                              AsnProThrSerAspTyrGlyLeuTyrProSerGlySerSerSerGluGlyGlnThrThr
                                                                                                                                                                                               ArgGluMetGluMetGlyLyBIleLyBArgThrGlyGlnGlyTyrSerGlyProSerLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sequencing and annotation of the RAFL CDNAs: Southwick, A., Nguyen, M., Karlin-Neumann, G., Lam, B., Miranda, M., Palm, C.J., Bowser, L., Jones, T., Banh, J., Chen, H., Cheuk, R., Chung, M.K., Kim, C., Lin, J., Liu, S.X., Pham, P.K., Sakano, H., Shinn, P., Yamada, K., Ecker, J., Theologis, A. and Davis, R.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (27-MAR-2002) DNA Sequencing and Technology C
Stanford University, 855 California Avenue, Palo Alto,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                e-mail for correspondence: arab@sequence.stanford.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 clone="RAFL07-12-E08 (R17522)"
/ecotype="Columbia"
/note="This clone is in pBluescript"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       organism="Arabidopsis thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="unknown protein"
                                                                                                                                                                                                                                                                                                                                       AY093065
AY093065.1 GI:20260331
BL_CDNA.
Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /mol_type="mRNA"
/db_xref="taxon:3702"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="At3g24550"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="At3g24550"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    chromosome="3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .1988
                                                                                                                                                               1868
                                                                                                                                                                                               628
                                                                                                                                 809
                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                       ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                           AY093065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
```

S88 LystysPheargLysMethlaLeuGlyThrGlnGluTyrAsnalaThrGlyGluTyrSer 607	SULT 11 008409 CUS BT008409 BT008409 BT008409 FINITION Arabidopsis thaliana At3g24600 gene, complete cds. CESSION BT008409 RSION BT008409.1 GI:30725491 TWORDS FIL CDNA. TWORDS Arabidopsis thaliana (thale cress) ORGANISM Arabidopsis thaliana	<pre>Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis. 1 (bases 1 to 1959) HORS Cheuk,R., Chen,H., Kim,C.J., Shinn,P., Bowser,L., Carninci,P., Dale,J.M., Hayashizaki,Y., Hsuan,V. W., Ishida,J., Jones,T., Kamiya,A., Karlin-Neumann,G., Kawai,J., Lam,B., Lin,J., Miranda,M., Narusaka,M., Nghyen,M., Onoders,C.S., Palm,C.J., Quach,H.L., Sakurai,T., Satcou,M., Seki,M., Southwick,A., Toriumi,M., Wong,C.,</pre>	<pre>Wu,H.C., Yamada,K., Yu,G., Yuan,S., Shinozaki,K., Davis,R.W., Theologis,A. and Ecker,J.R. LB Arabidopsis ORF clones RNAL Unpublished SNCE 2 (bases 1 to 1959) HORS Cheuk,R., Chen,H., Kim,C.J., Shinn,P., Bowser,L., Carninci,P., Dale,J.W. Hayashizaki,Y., Hsuan,V.W., Ishida,J., Jones,T., Kamiya,A., Karlin-Neumann,G., Kawai,J., Lam,B., Lin,J., Miranda,M.,</pre>			The Salk, Stanford, PGEC (SSP) Consortium members constructed and sequenced the pUNI (ORF) clones using the RAFL cDNAs: Cheuk, R., Charl, H., Kim, C.J., Shinn, P., Bowser, L., Chan, M. M., Chang, C.M., Dale, J.M., Hsuan, V.W., Jones, T., Karlin-Neumann, G., Lam, B., Lee, J.M., Lin, J., Miranda, M., Nguyen, M., Onodera, C.S., Palm, C.J., Quach, H.L., Southwick, A., Tang, C.C., Toriumi, M., Wong, C., Wu, H.C., Yamada, K., Yu, G., Yuan, S., Davis, R.W., Theologis, A., and Ecker, J.R.	rce
8 6 8 6 8 6	RESULT 11 BT008409 LOCUS DEFINITION ACCESSION VERSION KEYWORDS SOUNCE ORGANISM	REFERENCE AUTHORS	TITLE JOURNAL REFERENCE AUTHORS	TITLE JOURNAL	COMMENT		FEATURES
229 ProProProPheMetSerSerGlyGlySerAspTyrSerAspArgProValleu 247	TyrValHisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysVal 	328 HisargHistelvalSerLeuValGiryYrCysileAlaGlyAlaLyskrgLeuLeuVal 347 1026 CACAGGCATTGGTTTCTCTTATTGGTATGGCCGTGTTCAAGATTACTTGTC 1085 348 TyrGluPheValProAsnAsnAsnAeuLeuGluLeuHisteuHisGlyGlyGlyArgProThr 367		1266 GATTTCAAATTTGAAGGTAGGTTGCTGACTTTGGTCTTGCCTAGGATTGCTTTGATACA 1325 428 ASNTHLHISVALSETHTARGVALMETGLYTHTPHEGLYTYLLEUALAPTGCTTCTGATACA 1325 1326 AACACCATGTATCTACACGCGTGATGGGAACCTTTGGCTCCGGAATATGCT 1385 448 AlaSerGlyLygsLeuThrGluLygsSerAspValPheSerPheGlyValValLeuLeuGlu 467	1386 GCAAGTGTAAAGTCTGAAAAGTCTGACGTTTTCTCATTTGGCGTTGTATTTTGGAA 1445 468 LeulleThrGlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuVal 487 [AspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAla [528 AlaAlaCysValArgHisSerAlaArgArgArgProArgMetGerGln1leValArgAla 547

639 228

```
Tragaaggaarigrarcgcrgrcrraacgaaggaargagaccgcgcrcacagcaac 1716
                                                                                                                                                                                                                                                                                                                          HisarghisLeuvalSerLeuvalGlyTyrCysIlealaGlyAlaLysArgLeuLeuval
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TyrvalhisLysGlyValLeuDroSerGlyLysGluValAlaValLysGlnLeuLysVal
||||||||||||||||||
TATGTGCATAAAGGTATATTGCCTAGTGGGAAAGAAGTTGCTGTGAAACAGTTGAAAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TATGAGTTTGTTCCAAACAACAATCTTGAGTTTCACCTCCATGGTAAGGGACGGCCTACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HisGluAspCysAsnProLysllelleHisArgAsplleLysAlaSerAsnlleLeulle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCAAGTGGAAAGCTCACAGAAAAGTCTGACGTTTTCTCATTTGGCGTTGTACTTTTGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeulleThrClyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTTATTACTGGGAGGCGCCCTGTTGATGCGAACAATGTCTATGTAGATGACAGCTTAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AlaAlaCysValArgHisSerAlaArgArgArgProArgMetSerGlnIleValArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCGGCTTGTGTTCGCCATTCAGCTCGCCGCAGACCTCGCATGAGCCAGATAGTACGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsn
GGTCAACAACAGTATTGGCAACAACAAAAACGCGTCAGGCCGTCAGATAATCATGTAGTG
                             ThrSerLeuProProProLysAlaProSerProArgGlnProProProPro
                                            ---PheMetSerSerSlyGlySerAspTyrSerAspArgProValLeu
                                                                                                        CCACCACCAGCATTCATGAGTAGCAGTGGTGGTTCTCGACTATTCGGATCTTCCGGTTCTT
                                                                                                                                                 ProProProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGlu
                                                                                                                                                                  CCTCCACCATCTCCAGGGCTTGTTGGTTAGGCTTTTCTAAAAGCACTTTCACTTATGAGGAG
                                                                                                                                                                                                          LeualaargalaThrAsnGlyPheSerGlualaAsnLeuLeuGlyGlnGlyGlyPheGly
                                                                                                                                                                                                                            TTGTCGAGAGCTACTAATGGCTTCTCTGAGGCTAATTTGTTAGGACAAGGAGGTTTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                              TyrGluPheValProAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CATGAAGATTGCAAAAATCATTCACCGTGATATTAAGGCGTCAAACATATTGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AlaSerGlyLysLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AspAlaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ProProPro-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1657
                                                          640
                                                                                         229
                                                                                                                                                  248
                                                                                                                                                                                                           268
                                                                                                                                                                                                                                         817
                                                                                                                                                                                                                                                                    288
                                                                                                                                                                                                                                                                                                  877
                                                                                                                                                                                                                                                                                                                               308
                                                                                                                                                                                                                                                                                                                                                         937
                                                                                                                                                                                                                                                                                                                                                                                       328
                                                                                                                                                                                                                                                                                                                                                                                                                    997
                                                                                                                                                                                                                                                                                                                                                                                                                                                 348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 548
                                                                                                                     697
                                                                                                                                                                              757
                                                                                                                                                                                                                                                                                        음 성 음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8 & 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
 6 6 6 6 6 6 6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                    / LEARS Lation="MSTAPES POTTPS PER PROTUSTTTTP PPPAASS PPPTTTPS SPPTTTPS PER PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST PROTUST P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IleValThrLeuIleCysLeuLeuCysLysLysLysArgArgArg-----AspGluGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MetSerSerAlaProSerProGlyThr -----GlySerProProSerProProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ----SerAlaProProProThrThrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ThrProSerAlaProProProSerProProThrProSerThrProGlySerProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuProGlnProSerProProAlaProThrThrProGlySerProProAlaProValThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ProProThr --- ArgAsnProProProSerValProGlyProProSerArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GluGlyGlySerProArgProProSerSer----ProSerProProSerSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AspGlyLeuSerThrGlyValValValGlyIleAlaIleGlyGlyValAlaLeuLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GATGGATTGTCTACCGGAGTTGTAGGAATCGCCATTGGAGGAGTCGCTATTCTTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCTGCTTACTATGTTCCTCCTCCTCCATCTGGTCCCAAAGCTGGAGGACCTTACGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GlyGlnGlnGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAsp---HisValVal
                                                                                                                                                                                                                                                                                                                             1959
573
25
41
21
                                                                                                                                                                                                                                                                                                                               Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
    51"
 puni
                                                         product="At3g24600"
protein_id="AAP37768.1"
'db_xref="GI:30725492"
    is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AsnSerThrThrThrProProProAla-
                             /note="protein kinase"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                     (1-1959)
    clone
                                                                                                                                                                                                                                                                                                                                                                                                                                     BT008409
                                                                                                                                                                                                                                                                                                                               1.37e-63
2934.50
90.61%
86.82%
84.98%
 note="This
                .1959
                                                                                                                                                                                                                                                                                                                                                                                                                                     ×
                                                                                                                                                                                                                                                                                                                                                                                                                                     (1-647)
                                                                                                                                                                                                                                                                                                                                                      Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                   Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-086-464-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          114
                                                                                                                                                                                                                                                                                                                                  ..
9
                                                                                                                                                                                                                                                                                                                   Alignment
                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8 & B &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8 6 8 6 8 6 8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           С
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
```

1116

367

1056

1176

407

387

1236

1296

447

427

1416

467

1476

487

1536

527

1596

507

1656

567

a

ሯ

8 & 8 용 à

```
ThrSerLeuProProProProLysAlaProSerProProArgGlnProProProPro 228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       227 refrerecrececedesecrateratreacterecretecreterrefrere
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ProProThr --- ArgAsnProProProSerValProGlyProProSerAng 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATACTGACTCTGATTTGTCTTCTCTGTAAGAAGAACGAAGAAGAAGAAGACGACGATGAA 625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     167 AACTCGACAACCACCCCCCCCCCCCCACTCTTCTCTCTCCTCCCACAACTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCCCCTTCTCTTCCTCCTCCTCCTCGATCTTTAACT-----CCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Thr ProSerAla ProProProSer ProProThr ProSer Thr ProGly Ser ProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuProGlnProSerProProAlaProThrThrProGlySerProProAlaProValThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ---GGATCTACTCCTAGAACTCCATCAAACACTAAACCGTCGCCGCCGTCTGATTCTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTGCTTACTATGTTCCTCCTCCTCCTCCATCTGGTCCCAAAGCTGGAGGACGACCTTACGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerAlaProProProThrThrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SerSerProPro---ProSerThr11eProThrSerProProSerSerArgSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AspalaTyrTyrValProProProProProGlyProLysAlaGlyGlyProTyrGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAsp --- HisValVal
protein"
                                                                                                                                                                                                                                                                                                                                                                                                     2257
573
25
41
21
                                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AsnSerThrThrThrProProProAla-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indela:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MetSerSerAlaProSerProGlyThr ----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-086-464-2 (1-647) x AF370509 (1-2257)
                                                                                                                                                                                                                                                                                                                                                                                                     1.52e-63
2934.50
90.61%
86.82%
84.98%
                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                       Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       209
                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                   Alignment
                                                                                                                                                                                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Arabidopsis thaliana (thale cress)

Arabidopsis thaliana

Eukaryotca; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Bukaryotca; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;

rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.

I (bases I to 2257)

Southwick, A., Karlin-Neumann, G., Nguyen, M., Lam, B., Miranda, M.,

Palm, C.J., Bowser, L., Jones, T., Banh, J., Carninci, P., Chen, H.,

Cheuk, R., Chung, M.K., Hayashizaki, Y., Ishida, J., Kam, P.K.,

Kawai, J., Kim, C., Lin, J., Lin, S.K., Narusaka, M., Pham, P.K.,

Sakano, H., Sakurai, T., Satou, M., Seki, M., Shinn, P., Yamada, K.,

Shinozaki, K., Ecker, J., Theologis, A. and Davis, R.W.

Direct Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submitted (17-APR-2001) DNA Sequencing and Technology Center,

Confort Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Submission

Subm
                                                                                                                                                      1836
                                                                                                                                                                                                                                                                                     AATCCAACCAGTGACTACGGACTGTACCCCGTCTGGTTCAAGCAGTGAAGGTCAAGCCACA 1896
                                                                                                                                                                                                                                                                                                                                                                                                                             2257 bp mRNA linear PLN 30-APR-2001 protein kinase-like protein (MOB24.13) mRNA,
                                                                                                            607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RIKEN Genomic Sciences Center (GSC) members carried out the collection and clustering of RAFL cDNAS (RAFL cDNA : 'RIKEN trabidopsis Full-Length CDNA'): Seki,M., Narusaka,M., Ishida,J., Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai,J., Hayashizaki,Y. and Shinozaki,K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Seki, M. (RIKEN GSC) contributed i, K. (RIKEN GSC) and Davis, R.W.
                                              GTATACAGCTCATATGGAGGAAGGACAGACTATGACACGAGCCAATACAACGACGACGAG
                     ValTyrSerSerTyrGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMet
                                                                                                         LysLysPheArgLysMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSer
                                                                                                                                                                                                AsnProThrSerAspTyrGlyLeuTyrProSerGlySerSerSerGluGlyGlnThrThr
                                                                                                                                                   1777 ATAAAGTTTAGGAAAATGGCTCTTGGAACTCAAGAATACGGCACAACCGGCGAGTACAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The Salk, Stanford, PGEC (SSP) Consortium members carried out sequencing and annotation of the RAFL CDNAs: Southwick, A., Karlin-Neumann, G., Nguyen, M., Lam, B., Miranda, M., Palm, C.J., Bowser, L., Jones, T., Banh, J., Chen, H., Cheuk, R., Chung, M.K., Kim, C., Lin, J., Liu, S.Y., Pham, P.K., Sakano, H., Shinn, P., Yamada, K., Ecker, J., Theologis, A. and Davis, R.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            equally to this work. Shinozaki, K. (RIKEN GSC) and Dav (SSP/Stanford) contributed equally to this work as PIS. Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   e-mail for correspondence: arab@sequence.stanford.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="This clone is in pBluescript"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          organism="Arabidopsis thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (SSP/Stanford) and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /clone="RAFL11-07-N23"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /mol_type="mRNA"
/db_xref="taxon:3702"
/chromosome="III"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /ecotype="Columbia"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                107. .2065
/gene="MOB24.13"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="MOB24.13"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AF370509.1 GI:13877616
                                                                                                                                                                                                                                                                                                                                                                                                                           AF370509
Arabidopsis thaliana
complete cds.
AF370509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1. .2257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1. .2257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Southwick, A.
                                                                                                                                                                                                                                             1837
                                                             1717
                                                                                                            588
                                                                                                                                                                                                                                                                                                                                      1897
                                                                                                                                                                                                     608
                                                                                                                                                                                                                                                                                         628
                                                                                                                                                                                                                                                                                                                                                                                                                           LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                          AF370509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                          용
```

226

35

54

334

74

94

391

131 505 151 565

OW SOB LYBLYSPHeArgLysNetAlaLeuGlYHRIGInGluTyTasnalaThrGlyGluTyTSer 607 1883 ATAAAGTTTAGGAAATGGCTCTTGGAACTCAAAGGCCACACACGGCGAGTAACT 1942 OW GOB ASPECTHYSSRIPPYGLYLEUTYPTOSSCAGTYCAAGGAGTAACT 1942 1943 AATCCAACCAGTGACTACGGACTGGAACTCAAGGAGTGAACGTCAACGTCAAGGACACACA 2002 ON GOB ATGCTAACCAGTGACTACGGACTGTCCAGCACTCAAGGATTAAAGGTCAACCACA 2002 RESULT 13 ANOS9024 ANOS9	spilce variants, including unspliced introns and spilced exons; one percent may contain premature stop codons; five percent may have frame shifts in a coding region. A sequence is considered to be 5'-truncated if it lacks the translation initiation start (ATG). A sequence is considered to be 3'-truncated if it lacks the c-truncated if it lacks the sequence is considered to be 3'-truncated if it lacks the c-terminal end of the encoded protein. Please note that these cDNA sequences are derived from the Ws or LAcr ecotypes and therefore may contain polymorphisms when compared to sequences from CO-10. Genset carried out the library production and sequencing of the full-length clones. Ceres, Inc. carried out the clustering of the cource source location/Qualifiers 1.2324
16	468 LeuIleThrGlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuVal 487 1523 CTTATTACTGGGAGGGCCCTGTTGATGCGAACAATGTCTATGTAGATGATGACTTAGTT 1582 488 AspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAla 507 1583 GACTGGGCACGACCATTGCTTAACCGACCATCTGAGGAGGATTTTGAGGTTTGGCT 1642 508 AspAlaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAla 527 1643 GATTCAAGATGGGTAATGACAGAGGAGGAGTTTGACGGTTTGCTTGC

1 10 10 10 10 10 10 10	Oy 328 HisargHisLeuValSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuVal 347	Oy 348 TyrdluPheValProAsnAsnLeuGluLeuHisLeuHisGluGlyGluGlyArgProThr 367	1218 ATGGAATGGAGTACTAGATTGAAGATTGCTCTTGGATCTGCTAAAGGACTTTCATATCTT 1	388 HisGluAspCysAsnProLysllelleHisArgAsplleLysAlaSerAsnIleLeulle 4 		Oy 428 ABNThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAla 447	4 4	Qy 468 LeulleThrGlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuVal 487	D 4		Oy 528 AlaAlaCysValArgHisSerAlaArgArgArgProArgMetSerGlnIleValArgAla 547 Db 1697 GCAGCTTGTGTTCGCCATTCAGCTCGCCGCAGACCTCGCATGAGCCAGATAGTACGGGC 1756	Oy 548 LeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsn 567	Oy 568 ValTyrSerSerTyrGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMet 587		Oy 608 AsnProThrSerAspTyrGlyLeuTyrProSerGlySerSerSerGluGlyGlnThrThr 627	Oy 628 ArgGluMetGluMetGlyLyBlleLy8ArgThrGlyGlnGlyTyrSerGlyProSerLeu 647	AB020746 Arabidopsis thaliana	NERSION AB020746.1 GI:3985949 KEYWORDS SOURCE Arabidopsis thaliana (thale cress)
Σ 0.	83.55% Indels: 8 Gaps:	A ALOBOZA (I-2324) AlaProSerProGlyTh:GlySerProProSerProProSer	ABISETHYTHYTHYTHYPPOPROPROAIASEAAIAPFOPROPROTHYTHYPPRO	6 SerSerProProProProSerThr11eProThrSerProProSerSerArgSer	ThrProSerAlaProProProSerProProThrProSerThrProGlySerProProPro 74	LeuProGlnProSerProProAlaProThrThrProGlySerProProAlaProValThr 94	ProprothrArgasnProproserValProGlyProproserAsnProserArg 11. 	GluGlyGlySerProkrgProProSerSerProSerProProSerProSerSer 	ABDGIVIEUSETThrGIVVAIVAIVAIGIVIIEAIAIIEGIVGIVVAIAIAEULEUVAI I		ApplaTyrTyrValProProProProProGlyProLysAlaGlyGlyProTyrGly	GlyGlnGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAspHisValVal 20 	ThrSerLeuProProProLysAlaProSerProProArgGlnProProProProPro 22	ProproproPheMetSerSerSerGliditelandTyrSerAspArgProValleu 24	ProproproserProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGlu 26	LeullaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGly 28	TyrValHisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysVal 	1His 32 TCAT 10

```
CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Institute, Department of Plant Gene Research; 1532-3, Yana,
Kisarazu, Chiba 292-0812, Japan (E-mail:ynakamu@kazusa.or.jp,
Adarazu, Chiba 292-0812, Japan (E-mail:ynakamu@kazusa.or.jp,
Address for correspondence: kase@kazusa.or.jp
Address for correspondence: kase@kazusa.or.jp
For the latest information on annotation of this clone, please see
http://www.kazusa.or.jp/kaos/cgi-bin/agd_graph.cgi?c=MoB24
Genes with similarity to proteins in the databases are described in
'product' or 'note' qualifiers. Genes that have no significant
protein similarity are described as 'unknown protein'.

The software programs used to predict genes include: Grail
(Informatics Group, Oak Ridge National Laboratory,
http://compbio.ornl.gov/Grail-1.3/),
GENSCAN (Chris Burge, MIT, http://CRe-081.mit.edu/GENSCAN.html),
NetGene2 (S.M. Hebsgaard, et al., CBS, Technical University of
Denmark, http://www.cbs.dtu.dk/services/NetCene2/) and
SplicePredictor (Volker Brendel, Stanford University,
http://gremlinl.zool.iastate.edu/cgi-bin/sp.cgi).
Genes encoding tRNNs are predicted by tRNAscan-SE
(Sean Eddy, Washington University School of Medicine, St. Louis,
http://genome.wustl.edu/eddy/tRNAscan-SE/).
This sequence may not be the entire insert of this clone. It may be
shorter because we remove overlaps between neighboring submissions.
The S' clone is MXPS and the 3' clone is MSD24.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement (join (3794. .4276,4363. .4490,4577. .4673,
4757. .5179,5354. .5548,5693. .5970,6088. .6214,6297. .6496,
6601. .6649,6743. .6776,6882. .7013,7464. .7559,7677. .7743,
8162. .8217,8290. .8385,8470. .8998,9122. .9462))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /evidence=not_experimental
/brotein_id="BAB01995.1"
/brotein_id="BAB01995.1"
/brotein_id="BAB01995.1"
/brotein_id="EAB01995.1"
/brotein_id="EAB01995.1"
/brotein_id="EAB01995.1"
/brotein_id="EAB01995.1"
/brotein_id="EAB01995.1"
/brotein_id="EAB010995.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /tränslation="MORQRSILSFFQKPTAATTKGLVSGDAASGGGSGGPRFNVKSG
DAKGDASVRPAVSKSVDEVRGTDTPPEKVPRVLPSGFKPAESAGDASSLFSNIMHKF
VKVDDRDCSGERSREDVVPLNDSSLCMKANDVIPQFRSNNGKTQERNHAFSFSGRAEL
                                                                                                                                                                                                                    Kaneko, I., Katoh, I., Sato, S., Nakamura, A., Asamizu, E. and Tabata, S. Structural analysis of Arabidopsis thallana chromosome 3. II. Sequence features of the 4,251,695 bp regions covered by 90 Pl, TAC and BAC clones
Bukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta, Spermatophyta, Magnoliophyta, eudicotyledons, core eudicots, rosids, eurosids II, Brassicales, Brassicaceae, Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Kaneko, T., Kato, T., Sato, S., Nakamura, Y., Asamizu, E. and Tabata, S. Direct Submission
Submitted (03-DEC-1998) Yasukazu Nakamura, Kazusa DNA Research
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /evidence=not_experimental
/product==nDA repair protein MutS"
/proein_id==BAB01996.1"
/db_xref==GI:9294039"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1. .79706
/organisme="Arabidopsis thaliana"
/mol_type="genomic DNA"
/strain="Columbia"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /clone_lib="Mitsui Pl"
2398. .3399
/note="gene_id:MOB24.1
unknown protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                        DNA Res. 7 (3), 217-221 (2000) 20363099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      db_xref="taxon:3702"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    chromosome="3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          codon start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone="MOB24"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2 (bases 1 to 79706)
                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
```

COMMENT

/codon_start=1
/codon_start=1
/codon_start=1
/potentin_id="Bab01999.1"
/db_xref="d1:9294042"
/db_xref="d1:9294042"
/db_xref="d1:9294042"
/db_xref="d1:9294042"
/db_xref="d1:9294042"
/db_xref="d2:9294042"
/db_xref="d2:92942"
/db_xre OKLIAROYKORI DEDINING THE DEDINING THE STATE OF THE FROM | 10131. | 10577 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 10677 | 106 GEVIATTAEGDKEDVDLAVNAARYAPDHGPWPRWTGFERAKLINKFADLIEENIEELA
KLAAVGGKTALIPATKOAFRYNAGABAKIGGETLAWTROSLEGYTLKEPIG
VVGN II PWNPPS IMPATKVAPAMAAGCTMVVKPAEGTSLSALFYAHLSKEAGIPDBGV
NIVTGFGSTAGAAIASHMDVDKVSFTGSTDVGRKIMQAAAASNLKKVSLLEGGKSPLL
INTATORADLALLGCFYNKGEICYNSSRVPYGGETTNVGBLFAKADWTWGDP
POSTARACGPOVDKRGPEKILSY IEHGNNBGAYTLLTGGKAIGBKGYPTDYTBPYTGDP
POSTARACGPOVDKRGPEKILSY IEHGNNBGAYTLLTGGKAIGBKGYPTDPTIRAVTGDP
MKIYQDBIFGPVWSLMKFKTVEEGIKCANNTKYGLAAGILSQDIDLINTVSRSIKAGI complement(join(25945. .26640,26714. .26824,26914. .27012,27119. .27224,27291. .27360,27436. .27583))
/note="contains similarity to ubiquitin conjugating enzyme KEFASHPRVTŠKHMACAFKSRSDYQPRGCDQDLVFLYRLTEGACPESYGLQVALMAGI PNQVVETASGAAQAMKRSIGENFKSSELRSEFSSLHEDWLKSLVGISRVAHNNAPIGE DDYDTLFCLWHEIKSSYCVPK" ADLAKOTNERTOWORNERSKANDROMYLAKMERVLGGWILRGKIGK"
complement (join(11108. .11381,11467. .11528,11699. .11836,
11934. .12071,12261. .12334,12421. .12510,12718. .13104,
13623. .13765,14306. .14405))
/note="gene id: MOB24.4"
/codon start=1
/codon start=1
/product="aldehyde dehydrogenase"
/product="aldehyde dehydrogenase"
/do_xref="Gene id: 19294041" translation="MKNASLKLPL1F1LVITSNLGAEARKLTGVADVIVEGEAASPQ" CGEKKEVNEGTKFEWLESSRIRDANRRRPDDPLYDRKTLHIPPDVFKKASASQKQYWS VKSEYMDIVLFFKVGKFYELYELDAELGHKELDWKMTMSGVGKCRQVGISESGIDBAV translation="MENGKCNGATTVKLPEIKFTKLFINGQFIDAASGKTFETIDPRN/ THANN CYPGPDLDCPYGGYKMSGNCRESGMDALDNYLQTKSVVMPLHNSPWM"
Complement (join(19742. .19933,20400. .20657))
/note==gb|AAD25142.1
gene id:MD824.5
similar to unknown protein" YGIIDENDTLNKSPSCKRDIDCTFQCRRGGFCNLILQKCECL /evidence=not experimental /protein_id="BAB02000.1" /db_xref="GI:9294043" /codon start=1
/evidence=not_experimental
/protein_id="BAB02001.1" id:MOB24.7" codon start=1

```
52128
                                                                                                                                                      52185
                                                                                                                                                                                                                52245
                                                                                                                                                                                                                                                                          52305
                                                                                                                                                                                                                                                                                                                                      52364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           52661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     52901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 52961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CAACTTCATGAAATAAAAATCGAATATTTAACCATAGTTGTTCAATTCTGATACGAATTG 52424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 52781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       52721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             52841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         309
                                                              113
                                                                                                                        131
                                                                                                                                                                                    151
                                                                                                                                                                                                                                                                                                        184
                                                                                                                                                                                                                                                                                                                                                                                                                               184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HisLeuValSerLeuValGlyTyrCyslleAlaGlyAlaLyaArgLeuLeuValTyrGlu 349
      94
                                                                                                                                                                                                                                                              GCTGCTTACTATGTTCCTCCTCCTCCATCAGGTCTAGG-TAAATTCAAAGGTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ccarcrccacccrrcrcrrrrrrrranaaccacrrrcacrrarcaccacrrrcrc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGTCAGGGAGAGAGAGAGTTCAGGCTGAGGTTGAGATCATTAGCAGAGTTCATCACAGG
                    ProProThr --- ArgAsnProProSerValProGlyProProSerAsnProSerArg
                                                                                CCCTCAAACCCTCGAAGCCCTCCATCTCCTAACCAAGGACCACAAACACTCCCTCA---
                                                                                                                                                                                 CATTTGGTTTCTCTTATTGGTTATTGTATGGCCGGTGTTCAAAGATTACTTGTCTATGAG
      LeuProGlnProSerProProAlaProThrThrProGlySerProProAlaProValThr
                                                                                                                        GluGlyGlySerProArgProProSerSer-----ProSerProProSerProSerSer
                                                                                                                                           -----AspGluGlu
                                                                                                                                                                                                                                                                                                        AspalaTyrTyrValProProProProProGlyProLysAla------
                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTCAAATCTGATACTTGATTATGCATTGTTATCTGTTAAAGAGATTACCTTTGTGGAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----GlyGlyProTyrGlyGlyGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTTTCAAACTTTACAGAGATTTGATGTTGTTTATCAGCTGGAGGACCTTACGGTGGTCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAsp---HisValValThrSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeubroProProProLysAlaProSerProProArgGlnProProProProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIG---CCACCACCTAAGCCTCCATCTCCACCACAAAACCTCCTCCGCCACCACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pro---PheMetSerSerSerGlyGlySerAspTyrSerAspArgProValLeuProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ccagcarrcargagragcagragragerrcrgacrarrcagarcrrccagrrcrrccrcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGluLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGAGCTACTAATGGCTTCTCTGAGGCTAATTTGTTAGGACAAGGAGGGTTTGGTTATGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysValGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHisHisArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PheValProAsnAsnAsnLeuGluLeuHisLeuHisGlyGlu--------
                                                                                                                                                                                                                                              ------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               330
      75
                                52015
                                                              95
                                                                                                                          114
                                                                                                                                                                                    132
                                                                                                                                                                                                                                              152
                                                                                                                                                                                                                                                                            52246
                                                                                                                                                                                                                                                                                                        170
                                                                                                                                                                                                                                                                                                                                                                                                                                                            52425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                52545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            350
                                                                                            52072
                                                                                                                                                      52129
                                                                                                                                                                                                                  52186
                                                                                                                                                                                                                                                                                                                                      52306
                                                                                                                                                                                                                                                                                                                                                                     184
                                                                                                                                                                                                                                                                                                                                                                                                  52365
                                                                                                                                                                                                                                                                                                                                                                                                                               184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      52485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           52605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       52662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 52722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             52782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       52842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 52902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        53022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              52962
      8 6
                                                           8 8 8
                                                                                                                                              6 8 6 8 6 8 6 8 6 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           원 상
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8 6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ∂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   용
                                                                                                                                                                                                                                                                                                                                                                                                                                       gene_id:MOB24.9"

/codon_start=1
/evidence=not_experimental
/evidence=not_experimental
/protein_id="BAB02003.1"
/db_xref="GI:9294046"
/translation="WEDDNSNNNNNNNVIAPFIVKTVQMVNDPSTDWLITWGPAHNSF
IVUDPLDFSQRILPAYFKHNNFSSFVRQLMYYGFRKVDPDRWEFANEHFLRGQKHLLN
NIARRKHARGMYGQOLLGDERIVREIERLKEEQRELEAEIQHWNRIEATERFRERDEQMA
RIJKTVVBDPDLLPRMALEKRETKQQQQVSDKKKRRYTWSTVKSEEEEVBEDEGRYFRV
MSSSTPSPSSTFENLYRNHSPDGWIVPMTGQCPGSYFTGLJAKSNSTSSSTSSSLTS
TFGLPESVNGGGGGGCGSIQGERXYKETATFGGVVESNPPTTPPYPFESTSSSLTS
TFGLPESVNGGGGGGCGCGIGGERXYKETATFGGVVESNPPTTPPYPFESTSSSLTS
30267.3311 30567.3311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /translation="MAGARLSLRMQKELKLLLSDPPHGASFPHLSSAANGSGDFSTF
STIDAQIEGEEDTYVANGIFNLKIQIPERYPFOPPIVSFATFIYHPNIDNSGRICLDI
LNIPPKGAWQPSLNISTVITSMRLLISENPPDDGLMCEVSREYKYNRQTFDYKAREM
EKYAKYARAGCSTSLQIKWHGDEKSGESGNSVKLKLTYESSLSIAHTYKRETAGRDED
EDGNGKRKAVVGFGEGNSFGNDGIKRSRKKLSLALPSQSQKKDLCGEEELTRGVSAAC
ERKKRNLNGKKLSLGIKQPCNDTIASFRTSSAKSDNNRLSRKLSLRSPLGELNBVSK
PEVLAQTDMKLLEMNGPBARSLRGEFENSVLEETSMABSIVVLDSDDSGQEEEERVSS
SRSRLSLAKRRVLKCRP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      52014
                                                                                                                                                                                                          /prication id="Babb2002.i"
/brotein id="Babb2002.i"
/db_xref="G1:9294045"
/translation="MSSLIAYLSLFSNFSPLIKLSRILSNLWLLVRTSTNIKRKRWCL
ATBITHHHHATPLWKSSITHMLRFPGSNVBPPTYRFEISLSRAFILTQAMSHGETLLMD
ATSLFCLTRILMFSSASASHGONQTSTFPSPEMDASLSSSPNNSRHHHDLHLSEGKL
GLQLVGLVLFGPLRYRWPISKDDPKLPLKFPRSDLNYSLSIFSQSLYHLLASITRGHH
TNHNBLVLIWLHKNSLRTLPLVSSRTFVTGFICLKNNGIMFPTPTSRWCDLCHPSATI
                                                                                                                                                                                                                                                                                                                      CISPTHLGIGFKQSCISSRVKAHISRISKEVPNLFEIITEPSPHALVVKGLKKIGIMI
SPRSGDYGYRFNLSHSY PLITERKQKRFNIIKESHDLQGSLGKNGIMASSPWSDYR
SFRVLLDLTFIVTHLGGEQLGFLLVVSRTGALEPYSTSSRLITVYNLLSISSFVED
PSTTRDLTCAIMPYSLMLKALMNFWSFHIIYHILVLGNASFNYTHNFVIFESLLLIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MetSerSerAlaProSerProGlyThr -----GlySerProProSerProProSer 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AsnSerThrThrThrProProProAla----SerAlaProProThrThrPro 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        74
                                                                                                                                                                                                                                                                                                                                                                                                oin(32831. .33058,33143. .33907)
note="contains similarity to heat shock transcription
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SerSerProProPro---ProSerThrIleProThrSerProProProSerSerArgSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ThrProSerAlaProProProSerProProThrProSerThrProGlySerProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     51967 ccrécirerrecrécienterécrécrécrégarerraaci---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   79706
573
23
43
337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                   gene id:MOB24.8
similar to unknown protein"
                                                                                                                                                                                                 experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="gene_id:MOB24.10
unknown protein"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (1-79706)
                                                                                                                                     /note="emb|CAB79678.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           39311. .39367))
                                                                                                                                                                                    'codon_start=1
'evidence=not_e
                                                                                                                     28636. .30168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           x AB020746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7.29e-55
2622.00
61.19%
58.83%
75.93%
                                                                                                                                                                                                                                                                                                                                                                                                                               factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (1-647)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .gnment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-086-464-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     51787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               51847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           51907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ..
0
                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
```

8 q ક 요 상

셤 8 8

25331 TCTTTTGATTTTTTTATTTTTTTATTTTTTTTTTTTTTT	54161 GTTTTT 542 54221 CATCAT 542 54281 TTTTGT 54341 TGATTT 556 ABDLeu 556 ABDLeu 54401 GATTT	December December	RESULT 15 AK103247 LOCUS DEFINITION Oryza sativa (japonica cultivar-group) cDNA clone.J033123K23, full insert sequence. AK103247 AK103247 AK103247 AK103247 Oryza sativa (japonica cultivar-group) VERSTON KEYWORDS COYZA sativa (japonica cultivar-group) Oryza sativa (japonica cultivar-group) Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnollophyta; Liliopsida; Poales; Poaceae; Enhartcideae, Oryzaee; Oryza.	11-Length cDNA Consortium, National Institutal Sciences Rice Full-Length cDNA Project Satoh, K., Nagata, T., Kawagashira, N., Doi, N., Yamada, H., Ooka, Namiki, T., Ohneda, E., Yahagi, W., Suzuki, K., Shishiki, T., Ohneda, E., Yahagi, W., Suzuki, K., Shishiki, T., Foundation of Advancement of ome Sequencing & Analysis Group. Otomo, Y., Gano, S., Fujimura, T., Suzuki, Y., Tsunoda, Y., Gama, T., Masuda, H., Kobayashi, M., Xie, G., Sujiyama, A., Mizuno, K., Yokomizo, S., Niib, Shibiki, J., Kawamata, M., Yoshimura, A., Mizu, Oka, M., Ryu, R., Ueda, M., Matsubara, K., Rahibiki, J., Adachi, J., Alazwa, K., Arakawa, Janninci, P., Adachi, J., Imotani, K., Ishii, S., Imotani, K., Ishii, S.	Kagawa,I., Kondo,S., Konno,H., Miyazaki,A., Osato,N., Ota,Y., Salto,R., Sacaki,D., Sato,K., Shibata,K., Shinagawa,A., Shiraki,T., Yoshino,M. and Hayashizaki,Y. TITLE Collection, mapping, and annotation of over 28,000 cDNA clones from japonica rice JOURNAL Science 301 (5631), 376-379 (2003) MEDLINE 22752273 PUBMED 12669764 REFERENCE 2 (bases 1 to 2307) AUTHORS Adachi,J., Aizawa,K., Akimura,T., Arakawa,T., Carninci,P., Doi,K.,
_ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	363	408 pPheLysPheGluAlaLys	41	489	538 ArgProArgMetSer

23

42

22 99 216

53

384

88

70

TITLE JOURNAL

COMMENT

474

534

594

654

211

927 287 987 288 TyrValHisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysVal 307

Trercaecesceacearesarrerecarecraarerecreseacasescerrires

셤 ò

(1-2307)

x AK103247

JS-10-086-464-2 (1-647)

Query Match:

Pred. No.:

Score:

ORIGIN

FEATURES

```
ProProAlaPro----ValThrProProThrArgAsnProProProSerValProGly 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGCCGGGGCCCGGGCTCTTGTCTCCGCCCTGACG---CCTCCCGCAGCGCCATCG 441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProProSerAsnProSerArgGluGlyGlySerProArgProProSerSerPro---Ser 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   126 ProProSerProSerSerAspGlyLeuSerThrGlyValValValGlyIleAlaIleGly 145
                                                                                                                                                                                                                                                                                                                                                                                                                                               ----TyrTyr--- 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----ValProProProProProGlyProLysAlaGlyGlyProTyrGlyGlyGln 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   232 PheMetSerSerGlyGlySerAspTyrSer-----AspArgProValLeu 247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ProProProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGlu 267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCG 324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyValAlaLeuLeuValIleValThr -----LeuIleCysLeuLeuCysLysLys 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ProProProProLysAlaProSerProProArgGlnProProProProProProPro 231
                                                                                                                              ---ATCCGCTCAGGTCGCA-----ATCCGCTCCAATTCCCCACCACCACCA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCTCCGTCGACC-----ACGCCCTCGCCGCGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTACACAGTGGTGGTTCTGGGTCAAATTACTCCGGTGGCGACAACAGCGCAACCTCTAGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ------TCACCTGGTGCTTGGGTTTTTCAAGGTGTACTTTCACTTATGAGGAC
SerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThrThrThr
                                                                                                                                                                                                                                                                                                                                               CTCCGCTTTGTTCTTGCTCTTGCTCGTGGCGTGGTAGTCTTCGACTCGTTCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   655 cacccecceccecceccecceccecceccecceccercaaaccecraratecera
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----aagaadgrgccrrcgcarccrrccaccaccrccrccrccrccrccrccacraar
                                              acerceccheraeacrccacreseacearereseresresresraeraeraeraerreresc
                                                                                               ThrProProProAlaSerAlaProProProThrThrProSerSerProProProSer
                                                                                                                                                                                                                                             ------tcaccaccacacaaaaaaacrcrrgccrgcrcrrrrrg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----SerThrProSerAlaProProSerProProThrProSerThrProGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SerProProProLeuProGlnProSer----ProProAlaProThrThrProGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gegecegegericalgenegagenaakagagecegraangagenagagenagesee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAspHisValThrSerLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              164 ArgArgArgAspGluGluAspAla------
                                                                                                                                                                                               43 ThrileProThrSerProProSerSerArg
                                              7
                                                                                                  23
                                                                                                                                                                                                                                                                                                 53
                                                                                                                                                                                                                                                                                                                                               157
                                                                                                                                                                                                                                                                                                                                                                                                53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          898
                                 ద
                                                                                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                               ਨੇ
                                                                                                                                 음
                                                                                                                                                                               8
                                                                                                                                                                                                                                     유
                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
            Hayashida, K., Hayashizaki, Y., Hayatsu, N., Hizamoto, K., Hizaoka, T., Hayashida, K., Hayashizaki, Y., Hayatsu, N., Ikeda, R., Imamura, K., Ishhibiki, J. Ishi, Y., Ishkawa, M., Itoh, M., Kagawa, I. Kanagawa, S., Katch, H., Kawagashira, N., Kawai, J., Kawamata, M., Kanagawa, S., Katch, H., Kawagashira, N., Kabai, J., Kodama, T., Kojima, Y., Kojima, Y., Kondo, S., Konno, H., Kodaa, M., Kodama, T., Kojima, K., Kojima, Y., Kondo, S., Konno, H., Kodaa, M., Koya, S., Kurihara, C., Kurobaki, T., Murata, T., Mizara, T., Mizara, T., Mizara, M., Masuda, H., Matsubara, K., Murata, M., Nakamura, M., Namiki, T., Narikawa, R., Nikura, J., Nishi, K., Oka, M., Ooka, H., Obato, M., Ota, W., Ota, M., Ohto, M., Ohtsuki, K., Oka, M., Ooka, H., Sakai, C., Sakai, S., Sakaume, N., Sano, H., Sasaki, D., Satoh, K., Shibata, K., Shinahiki, T., Sagabe, Y., Sugano, S., Suzuki, K., Suzuki, Y., Tagami, M., Tagami, Takeda, Y., Tagawa, A., Takahashi, F., Takaku, K., Xie, Q., Yahagi, W., Tagawa, A., Takahashi, F., Takaku, K., Xie, Q., Yahagi, W., Yamada, H., Yamamoto, M., Yasunishi, A., Yazaki, J., Yokomizo, S. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pals Genome Sequencing & Analysis Group: Otomo,Y., Iida,Y., Fals Genome Sequencing & Analysis Group: Otomo,Y., Iida,Y., Fals Genome Sequencing & Analysis Group: N. Kobayashi,M., Kobayashi,M., Kodama,T., Kurosaki,T., Kusumegi,T., Lu,M., Masuda,H., Miura,J., Mizuno,K., Narikawa,R., Nikura,J., Oka,M., Ryu,R., Sugano,S., Sugiyama,A., Suzuki,Y., Tsunoda,Y., Ueda,M., Xie,Q., Yokomizo,S., Yoshimura,A., Matubara,R. and Murakami,K., Genome Exploration Research Group in Riken: Adachi,J., Aizawa,K., Akimura,T., Arakawa,T., Carninci,P., Fukuda,S., Hanagaki,T., Hara,A., Hashizume,W. Hayashida,K., Hayatsu,M., Hiramoto,K., Hiraoka,T., Hara,A., Hashizume,W., Rayashida,K., Hayatsu,M., Kagawa,I., Kanagawa,S., Katch,H., Kouda,M., Kishikawa-Hirozane,T., Kolima,Y., Kondo,S., Konno,H., Kouda,M., Koya,S., Kurihara,C., Matsuyama,T., Miyazaki,A., Murata,M., Ota,Y., Saitoh,H., Sakai,C., Sakai,K., Sakazume,M., Sano,H., Sasaki,D., Sato,K., Shibata,K., Shinagawa,A., Shiraki,T., Takahira,S., Tanaka,T., Tomaru,A., Toya,T., Waki,K., Tagami,Y., Tagami,Y., Tagami,Y., Toya,T., Takahishi,F., Yasunishi,A., And Hayashizaki,Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        rice.
URL.

URL.

URL.

URL.

URL.

URL.

URL.

URL.

URL.

URL.

URL.

URL.

URL.

URL.

URLS Rice Full-Length cDNA Project Team: Kikuchi.S., Satch,K.,

Nagata,T., Kawagashira,N., Doi,K., Kishimoto,N., Yazaki,J.,

Ishikawa,M., Yamada,H., Ooka,H., Hotta,I., Kojima,K., Namiki,T.,

Ohneda,E., Yahagi,W., Suzuki,K., Li,C., Ohtsuki,K., Shishiki,T. and

Ohneda,E., Xahagi,W.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Direct Submission

Submitted (27-AUG-2002) Shoshi Kikuchi, National Institute of Agrobiological Sciences, Department of Molecular Genetics, Head of Laboratory of Gene Expression; 2-1-2 Kannondai, Tsukuba, Ibaraki 305-8602; Japan (E-mail:sKikuchi@nias.affrc.go.jp, Tal:19-129-848-7007, Fas.81-29-8383-7007, This clone is one of the 28K full-length cDNA clones from japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Oryza sativa (japonica cultivar-group)"
/mol_type="mRNA"
/mol_type="mRNA"
/cultivar="taxon:39947"
/db cateracon:39947"
/clone="J033123X23"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2307
386
75
138
1117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4.03e-37
1841.50
64.39%
53.91%
53.33%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    . .2307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           foshimura, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Alignment Scores:
```

: 5986

Job time

8 8 6 8 6 8 6

8 &

8 6 8

```
1347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1992
1107
                                                                                                                    1167
                                                                                                                                                                        1227
                                                                                                                                                                                                                           1287
                                                                                                                                                                                                                                                                                                                      1467
                                                                                                                                                                                                                                                                                                                                                                                                                                       1527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            327
                                                                                           347
                                                                                                                                               367
                                                                                                                                                                                                  387
                                                                                                                                                                                                                                                     407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTCTTGGGATCATAC---AACAGCAAGTACGACACGGGCCATTACAATGAAGACCTG 1884
                                                                                                                                                                                                                                                                                                                                                           447
                                                                                                                                                                                                                                                                                                                                                                                                              467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LysbysPheArglysMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGluTyrSer 607
                                                                                                                                                                                                                                                                                                       AspPheLysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThr 427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAsspPheGluGlyLeuAla 507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsn 567
                                                                                                                                                                                                                                                                                                                                                         ABNThrhisValSerThrargValMetGlyThrPheGlyTyrLeuAlaProGluTyrAla
                                                         GGGAGTGGGCAGGGAGAGAGTTTTCAGGCGGAGGTTGATTATCAGCTGGTTATT
                                                                                                         TyrGlupheValproAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThr
                                                                                                                                                                                                                                                     HisGluAspCysAsnProLysIleIleHisArgAspIleLysAlaSerAsnIleLeuIle
                                                                                                                                                                                                                                                                  CTAATAACTGGCCGCCGTCCTGTGAGATCGAACCAATCACAGATGACAGCTTGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |||| :::::
GATCCACGGCTAGGACAGGAGTACAATGGTAACGAGATGGCGAGGATGATTGCTTGTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ValTyrSerSerTyrGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHis
                                                                                           HisArgHisLeuValSerLeuValGlyTyrCyslleAlaGlyAlaLysArgLeuLeuVal
                                                                                                                                                              MetGluTrpSerThrArgleuLys1leAlaLeuGlySerAlaLysGlyLeuSerTyrLeu
                                                                                                                                                                                                                 AlaSerGlyLysLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LeuileThrGlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AspalaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAGAAATTCAGGAAGATGGCATTTGGCAGTGGCAATCTA-------GAGAGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AsnProThrSerAspTyrGlyLeuTyrProSerGlySerSerSerGluGlyGlnThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Arg-------GluMetGluMetGlybsileLysArgThrGly 639
                                                                   1048
                                                                                                                     1108
                                                                                                                                                                         1168
                                                                                                                                                                                                                                                                               1288
                                                                                                                                                                                                                                                                                                                                   1348
                                                                                                                                                                                                                                                                                                                                                                                                                                        1468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1993
               988
                                         308
                                                                                             328
                                                                                                                                               348
                                                                                                                                                                                                   368
                                                                                                                                                                                                                            1228
                                                                                                                                                                                                                                                     388
                                                                                                                                                                                                                                                                                                         408
                                                                                                                                                                                                                                                                                                                                                             428
                                                                                                                                                                                                                                                                                                                                                                                    1408
                                                                                                                                                                                                                                                                                                                                                                                                                 448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          628
```

8 6 8 6 8 6 8 6 8 6 8 6

ઠે

8 & 8

8 8 8

Search completed: May 13, 2004, 00:33:01

OM protein

Run on:

Sequence:

ritle:

```
New proline-rich, extensin-like receptor kinase nucleic acids and polypeptides useful for increasing plant wounding or pathogen resistance,
                                                                       Arabidops
Arabidops
Arabidops
Arabidops
                                                                                                                                                                                      Rice gene
P. patens
Rice gene
                                                                                                                                                                                                                                                                                                                                                              Arabidops
Arabidops
Arabidops
Arabidops
                                                                                                                                                                                                                                                                                                                                                                                                                                         Arabidops
A thalian
Arabidops
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Rice gene
Arabidops
Arabidops
                 Arabidops
Arabidops
Arabidops
                                                                                                                                                    Rice gene
Arabidops
                                                                                                                                                                                                                                               Rice gene
Arabidops
                                                                                                                                                                                                                                                                                  Arabidops
Arabidops
                                                                                                                                                                                                                                                                                                                          Rice gene
Arabidops
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Rice gene
Arabidops
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Rice gene
Pinus rad
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eucalyptu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Arabidops
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Rice gene
Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Proline-rich extensin-like receptor kinase; PERK; resistance; plant; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Se
                 AACÉ36551
AAEÉ7097
AAEÉ7650
AACÉ36550
AACÉ36550
AACÉ36550
AAACÉ36550
AAACÉ3050
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
AAACÉ30701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Aac45877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ALIGNMENTS
                                                                                                                                                                                                       AAH22557
ADA70647
ADA69478
AAC43029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAA79271
ADA69829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAA79266
ADA71066
                                                                                                                                                    4DA70890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAF77094 standard; DNA; 1944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-0149466P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18-AUG-2000; 2000WO-CA000966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17-MAY-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Brassica napus PERK1 DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2001-244305/25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          D, Silva N;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (GORI/) GORING D. (SILV/) SILVA N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Brassica napus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200114563-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19-AUG-1999;
13-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-MAR-2001
1507
14795
14715
14715
1209.5
1209.5
1188
816.5
816.5
804.5
7793.5
7793.5
775.5
775.5
775.5
775.5
775.5
775.7
775.7
775.7
775.7
775.7
                                                                                                                                                                                                                                                                                                                                                                                                                       758.5
758.5
758.5
758.5
758.5
758.5
740.5
740.5
740.5
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
740.7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Goring
   -MODEL-frame + $\tilde{p}$20.000001 - DEV=x1p \\
-Q=/cgn2_1/USPTO spool_p/US10086464/runat_11052004_121814_7833/app_query.fasta_1.839 \\
-Q=/cgn2_1/USPTO spool_p/US10086464/runat_11052004_121814_7833/app_query.fasta_1.839 \\
-Q=/cgn2_1/USPTO spool_p/US10086464/runat_110520.rung-miNnAnTel-e1.1-LOOPCL=0 \\
-LOOPEXT=0 - UNITS=bits -STRAT=1 - END=-1 - MARRIX=blosum62 - TRANS=human40.cdi \\
-LIST=45 - DOCALIGN=200 - THR_SCORE=pct - THR_MX=100 - THR_MIN=0 - ALIGN=15 \\
-MODE=LOCAL_OTTFMT=pto - NORM=ext - HEAPSIZE=500 - MINLEN=0 - MAXLEN=200000000 \\
-USRE-SI0008644 @CGN | 11 - 700 @runat = 11052004 | 121814 + 7833 - UCPU=6 - ICPU=3 \\
-NO_MMAP - LARGEQUERY - NEG_SCORES=0 - WAlT - DSPBLOCK=100 - LONGLOG \\
-DEV_TIMEOUT=120 - WARN_TIMEOUT=30 - THREADS=1 - XGAPOP=10 - XGAPEXT=0.5 - FGAPOP=6 \\
-FGAPEXT=7 - YGAPOP=10 - YGAPEXT=0.5 - DELOP=6 - DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Aa£77094 Brassica
Ac£36548 B. napus
Ac£36559 B. napus
Ac£36557 A. thalia
Ac£36556 Arabidops
Ac£36555 Z. mays P
Ac£36556 G. mays P
                                                                                                                              ; Search time 603 Seconds (without alignments) 4558.183 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                 647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Description
                                                                                                                                                                                                       US-10-086-464-2
3453
1 MSSAPSPGTGSPPSNST.....REWEMGKIKRTGQGYSGPSL
                                                                                                                                                                                                                                                                                                                                                                                                                                         6747726
                   GenCore version 5.1.6
(c) 1993 - 2004 Compugen Ltd
                                                                                            nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                           Fotal number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                     3373863 seqs, 2124099041 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                      0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACF36548
ACF36549
ACF36557
AAC36968
ACF36554
ACF36555
                                                                                                                                                                                                                                                                                                  Xgapop 10.0 , Xgapext
Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
                                                                                                                              May 12, 2004, 20:46:26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               geneseqn2003as:*
geneseqn2003bs:*
geneseqn2003cs:*
geneseqn2004s:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        geneseqn2001as:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          genesegn2001bs:*
genesegn2002s:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              geneseqn1980s:*
geneseqn1990s:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Geneseq 29Jan04:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      geneseqn2000s:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              length: 0 'length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1944
1944
2189
1959
2324
1812
1515
1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Command line parameters:
                                                                                                                                                                                                                                                                                      BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query
Match 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3453
3453
3453
2936.5
2885
1821.5
1668
                                                                                                                                                                                                                                                                                      Scoring table:
                                                                                                                                                                                                                               Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score
```

Database :

Š.

Result

08

Minimum I Maximum I

1020

340

900

320

1140

1200

400

1080

380

1260

420

1320

460

440

1440

480

1500

540

1680

560

1740

620

580

```
ATGAGACCAGGTCAAAGCAATGTATACAGCTCATACGGAGGAAGCACCGATTATGACTCG
TyrSerAspArgProValLeuProProProSerProGlyLeuValLeuGlyPheSerLys
                                                                                                                                             GAGATCATCAGCAGAGTTCACCACAGGCATCTGGTGTCTCTTGTTGTTGTTTGCATCATCGCC
                                                                                                                                                                                                                                         GGTGCCAAAAGATTGCTTGTCTATGAGTTTGTTCCTAACAACAATCTCGAGCTTCACCTC
                                                                                                                                                                                                                                                                                                                       AlaLysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAspIle
                                                                                                                                                                                                                                                                                                                                   GCTAAAGGACTTTCTTATCTTCATGAAGATTGCAATCCTAAAATCATCACCGTGATATC
                                                                                                                                                                                                                                                                                                                                                                               GCTAAGATTGCTTCTGATACAAACACGCATGTATCAACACGTGTGATGGGAACCTTTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTTGGCGTTGTGCTTTTGGAGCTCATTACTGGACGTCGACCGTTGATGCCAACAATGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTCGCATGGTTGTGCTGCGGCTTGTGTTTCGCCATTCAGCTCGCCGCAGACCTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MetArgProGlyGlnSerAsnValTyrSerSerTyrGlyGsrThrAspTyrAspSer
                                            SerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeu
                                                         LeuGlyGlnGlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLysGluVal
                                                                                                    ullelleSerArgValHisHisRhsArgHisLeuValSerLeuValGlyTyrCyslleAla
                                                                                                                                                                                                                             GlyAlaLysArgLeuLeuValTyrGluPheValProAsnAsnLeuGluLeuHisLeu
                                                                                                                                                                                                                                                                                                                                                                   LysAlaSerAsnIleLeuIleAspPheLysPheGluAlaLysValAlaAspPheGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                               AlaLysIleAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                            TyrLeuAlaProGluTyrAlaAlaSerGlyLyBLeuThrGluLyBSerAspValPheSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGluGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AlaArgMetValAlaCysAlaAlaAlaCysValArgHisSerAlaArgArgArgProArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AsnAlaThrGlyGluTyrSerAsnProThrSerAspTyrGlyLeuTyrProSerGlySer
                                                                                                                                     nAlaGluVal
                                                                                                                                    AlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGl
                                                                                                                                                                                  ย
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1381
                                                                                                                                                                                                        961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1681
 241
                      721
                                            261
                                                                  781
                                                                                         281
                                                                                                                841
                                                                                                                                      301
                                                                                                                                                            901
                                                                                                                                                                                  321
                                                                                                                                                                                                                                341
                                                                                                                                                                                                                                                    1021
                                                                                                                                                                                                                                                                           361
                                                                                                                                                                                                                                                                                                 1081
                                                                                                                                                                                                                                                                                                                        381
                                                                                                                                                                                                                                                                                                                                               1141
                                                                                                                                                                                                                                                                                                                                                                     401
                                                                                                                                                                                                                                                                                                                                                                                           1201
                                                                                                                                                                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                                                                                                                                        1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                              441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                         8 %
                                                                                                                                                                                                                                             d
                                                                                                                                                                                                                                                                   $ B
                                                                                                                                                                                                                                                                                                                   8 8 8
                                                                                                                                                                                                                                                                                                                                                                                    중 음
                                                                                                                                                                                                                                                                                                                                                                                                                                요 요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8 6 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8 6 8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ⋧
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
 6 6 6
                                                           요
                                                                                                        g
                                                                                                                             à
                                                                                                                                                      g
                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                        ò
                                                   The present invention relates to proline-rich extensin-like receptor kinase (PERK). The PERK nucleic acids and polypeptides are useful for increasing the resistance of plants to wounding and pathogens. These are also useful for producing transgenic plants with increased wounding and pathogen resistance compared with a wild type plant, as well as in assays for identifying and developing compounds to inhibit and/or enhance polypeptide function directly
                                                                                                                                                                                                                                                                                                                                                                                                                                               240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                                                                                                                                                     180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       200
                                                                                                                                                                                                                                                                                                                                                         120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               300
                                                                                                                                                                                                                                                                                                                                                                                                                            80
                                                                                                                                                                                                                                                                                       20
                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                    40
                                                                                                                                                                                                                                                                                                                                                                                8
 pathogen
                                                                                                                                                                                                                                                                                                                                   GlylleAlalleGlyGlyValAlaLeuLeuValIleValThrLeuIleCysLeuLeuCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlyProLysAlaGlyGlyProTyrGlyGlyGlnGlnGlnGlnTrpArgGlnGlnBsnAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProArgGlnProProProProProProProPheMetSerSerSerGlyGlySerAsp
                                                                                                                                                                                                                                                                                        MetSerSerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThr
                                                                                                                                                                                                                                                                                                    ATGTCCTCGGCGCGTCTCCGGGGGACTGGTTCGCCTCCATCTCCACCATCAAACTCCACA
                                                                                                                                                                                                                                                                                                                                                                                ProSerThrIleProThrSerProProProSerSerArgSerThrProSerAlaProPro
                                                                                                                                                                                                                                                                                                                                                                                            CCATCCACTATTCCGACATCTCCTCCTCCTTCTTCTCTCTACACCTTCTGCTCCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                             ProSerProProThrProSerThrProGlySerProProProLeuProGlnProSerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                         CCATCTCCACCAACTCCATCTACGCCGGGATCTCCACCTCCTCTTCCTCAGCCGTCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Prola ProThrThrProGlySerProProAla ProVal ThrProProThrArgAsnPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCGGCTCCAACTACGCCGGGATCTCCACCGGCACCTGTTACTCCTACTCGAAAACCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ProProSerValProGlyProProSerAsnProSerArgGluGlyGlySerProArgPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ProSerSerProSerProSerProSerSerAspGlyLeuSerThrGlyValValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCATCTTCTCCCTCGCCGCCGTCTCCTTCTTCCGACGGTTTATCAACAGGAGTGGTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGAATCGCCATCGGAGGAGTCGCTCTGCTTGTGATAGTGACTCTCATTTGTCTCCTCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LysLysLysArgArgArgAspGluGluAspAlaTyrTyrValProProProProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCACGCCAACCTCCTCCACCTCCACCGCCTTTCATGAGCAGCAGCGGCGCTCCGAC
 or
                                                                                                                                                 Other;
 wounding
                                                                                                                                                                                1944
647
0
0
0
                                                                                                                                                 0
                                                                                                                                                  ņ
 increased
                                                                                                                                                                                 Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                  0
                                                                                                                                                  ī,
                                                                                                                                                  G; 471
 with
                                                                                                                                                                                                                                                                 (1-1944)
                                                                                                                                                  C; 459
 plants
                                                                                                                                                                                                                                                                 x AAF77094
                                  English
                                                                                                                                                  BP; 464 A; 550
                                                                                                                                                                                  4.62e-93
3453.00
100.00%
100.00%
  transgenic
                                  91pp;
                                                                                                                                                                     Alignment Scores:
Score:
Percent Similarity:
Percent Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                 (1-647)
  producing
                                  1;
                                 Fig
                                                                                                                                                                                                                                                                 US-10-086-464-2
  or for prod
resistance.
                                  9
                                                                                                                                                                                                                                                                                                                                     21
                                                                                                                                                                                                                                                                                                                                                                                41
                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 221
                                                                                                                                                                                                                                                                                                                                                         19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          601
                                  Claim
```

셤

6 6 6

ò

8 6 8

8 6 8 6

8 6 8 6

8 8 8

q

셤

ò

ò

Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:

4.62e-93 3453.00 100.00% 100.00%

(1-1944)

m

```
US-10-086-464-2 (1-647) x ACF36548
                                                           Percent Similarity:
Best Local Similarity:
                Alignment Scores:
Pred. No.:
                                                                                        Query Match:
DB:
The invention relates to producing a transgenic plant having increased plant height, number of branches, number of seed pods and/or seed production compared to a non-transgenic plant, and/or quicker flowering or later sensescence compared to a non-transgenic plant. The method involves transforming a plant with a vector including a Proline-rich extensin-like Receptor Kinase (PERK) nucleic acid molecule or a nucleic acid molecule having PERK activity. The method, as well as the PERK nucleic acid molecule and polypeptide, are useful in increasing plant resistance to wounding and pathogens and in increasing plant growth and seed production. The nucleic acid molecule and polypeptide may also be used in producting transgenic plants or transgenic host cells. The present sequence represents a cDNA encoding a B. napus PERK1 receptor kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Producing a transgenic plant having an increased plant resistance, plant growth or seed production comprises transforming a plant with a nucleic acid molecule having a Proline-rich Extensin-like Receptor Kinase
                                            SerSerGluGlyGlnThrThrArgGluMetGluMetGlyLysIleLysArgThrGlyGln
                                                                                                                                                                                                                                                                                                          PERK1; transgenic; plant; proline-rich extensin-like receptor kinase; wound; pathogen resistance; plant growth; seed production; gene; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note= "Proline-rich Extensin-like Receptor Kinase"
                                                                                                                                                                                                                                                                                                                                                                                                                                 aa:
                                                                                                                                                                                                                                                                                                                                                                                                                               except= (pos: 1332. .1334,
E= "PERK1"
                                                                                                                                                                                                                                                                               napus PERK1 receptor kinase encoding cDNA
                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
1. 1944
/*tag= a
                                                                                                                   GlyTyrSerGlyProSerLeu 647
                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Haffani YZ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Claim 3; Fig 1A; 123pp; English.
                                                                                                                                                                                         ACF36548 standard; cDNA; 1944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           28-FEB-2002; 2002CA-02373903.
28-FEB-2002; 2002US-00086464.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28-FEB-2003; 2003WO-CA000274
                                                                                                                                                                                                                                                                                                                                                                                                                /*tag= a
/transl exc
/product= '
                                                                                                                                                                                                                                                   (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SILVA N.
HAFFANI Y Z.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 2003-712727/67.
P-PSDB; ABR82937.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Silva N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (GORI/) GORING D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WO2003072763-A1
                                                                                                                                                                                                                                                                                                                                                         Brassica napus.
                                                                                                                                                                                                                                                   18-DEC-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   04-SEP-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Goring D,
                                                                       1861
                                                                                                    641
                                                                                                                                 1921
                                                                                                                                                                                                                      ACF36548
                                          621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (SILV/)
(HAFF/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    activity
                                                                                                                                                                         원
                                          8
                                                                                                  ઠે
```

```
140
                                                                                                                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                                                                                                                           160
                                                                                                                                                                                                                                                                                                                                                                  480
                                                                                                                                                                                                                                                                                                                                                                                        180
                                                                                                                                                                                                                                                                                                                                                                                                                                        200
                                                                      120
                                                                                                                      180
                                                                                                                                                                     240
                                                                                                                                                                                             100
                                                                                                                                                                                                                     300
                                                                                                                                                                                                                                           120
                                                                                                                                                                                                                                                                   360
                                                                                                                                                                                                                                                                                                                                                                                                                  540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluVal 320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             900
                       9
                                               40
                                                                                               9
                                                                                                                                              80
                                                                                                                                                                                                                                                                                                                                        LysLysLysArgArgArgArgAspGluGluAspAlaTyrTyrValProProProProProProPro
CCATCCACTATTCCGACATCTCCTCCTTCTTCTCGCTCTACACACCTTCTGCTCCTCCT
                                                                                                                                              ProSerProProThrProSerThrProGlySerProProLeuProGlnProSerPro
                                                                                                                                                                                                          CCCGCTCCAACTACGCCCGGATCTCCACCCGCACCTGTTACTCCTCCTACTCGAAACCCT
                                                                                                                                                                                                                                                                                                         CCATCTTCTCCCTCGCCGCCGTCTCTTCTTCCGACGATTATCAACAGGAGTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ThrProProSerAspHisValValThrSerLeuProProProLysAlaProSerPro
                                               ThrThrThrProProPlaSerAlaProProProThrThrProSerSerProPro
                                                                                               ProSerThrIleProThrSerProProProSerSerArgSerThrProSerAlaProPro
                                                                                                                                                                      ccarcrocaccaacrocarcracecoeegarcrocaccrocrocacorocae
                                                                                                                                                                                              ProAlaProThrThrProGlySerProProAlaProValThrProProThrArgAsnPro
                                                                                                                                                                                                                                              ProProSerValProGlyProProSerAsnProSerArgGluGlyGlySerProArgPro
                                                                                                                                                                                                                                                                   ccaccricagreccaccaccaccarccarccricacccaaacaaacaarcrecreaaccr
                                                                                                                                                                                                                                                                                           ProSerSerProSerProSerProSerSerAspGlyLeuSerThrGlyValValValVal
                                                                                                                                                                                                                                                                                                                                                                                                       AAGAAGAAACGACGAGAGAGAAGAAGAAGATGCTTACTATGTTCCTCCGCCACCTCCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyProLysAlaGlyGlyProTyrGlyGlyGlnGlnGlnGlnTrpArgGlnGlnAsnAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGTCCCAAAGCCGGAGGACCTTACGGTGGACAGCAGCAACAATGGCGGCAACAAAACGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ProArgGlnProProProProProProProPheMetSerSerSerGlyGlySerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCACGGCAACCTCCTCCACCTCCACCACCACCTTTCATGAGCAGCAGCGGCGGCTCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             racrossaccerccastrerrecreesecercesesecrrererrassecrrereaaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGCACTTTCACATACGAGGGGGGCTAGCTAGAGCCCACCAATGGTTTCTCCGAGGCGAACTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Traggacaaggcgggtrcggtracgrgcacaaaggrgrgrgccragrgggaaagaagrr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               acaccaccarcagarcargregreacercacraccaccaccraagecrecarcreca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TyrSerAspArgProValLeuProProProSerProGlyLeuValLeuGlyPheSerLyB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuGlyGlnGlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLysGluVal
  Н
                                               21
                                                                       61
                                                                                               41
                                                                                                                       121
                                                                                                                                               61
                                                                                                                                                                       181
                                                                                                                                                                                              81
                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                              101
                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                                                                           141
                                                                                                                                                                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                                                                                                                                                           161
                                                                                                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             841
ò
                  g
                                             ઠે
                                                                  ద
                                                                                              ò
                                                                                                                 셤
                                                                                                                                              ò
                                                                                                                                                                  원
                                                                                                                                                                                             ò
                                                                                                                                                                                                               원
                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                              원
                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                              용
                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
```

Sequence 1944 BP; 464 A; 550 C; 459 G; 471 T; 0 U; 0 Other;

polypeptide

```
ACF36549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   activity
                                                                                                                                                                                                                                                                                                                                                                        (HAFF/)
                                                                        monuq;
                                                                                                                                                                 5'UTR
                                                                                                                                                                                                                                         3'UTR
                                                                                                           Key
                                                                                                                                                                                   CDS
1140
                                                                                                                                                                                                                                                                                                1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1920
                                   1020
                                                                        1080
                                                                                                                                                1200
                                                                                                                                                                                   1260
                                                                                                                                                                                                                      1320
                                                                                                                                                                                                                                                                                                                                   1500
                                                                                                                                                                                                                                                                                                                                                                        1560
                                                                                                                                                                                                                                                                                                                                                                                                            1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                1680
                                                                                                                                                                                                                                                           TACTIGGCICCGGAATACGCIGCAAGCGGAAAGCICACGGAGAAGICIGACGITITCICA 1380
                                                                                                                                                                                                                                                                                                                                                                                         540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             640
                                                                                         380
                                                                                                                              400
                                                                                                                                                                                                                                         460
                                                                                                                                                                                                                                                                                                                  200
                                                                                                                                                                 420
                                                                                                                                                                                                      440
                                                                                                                                                                                                                                                                             480
                                                                                                                                                                                                                                                                                                                                                      520
                                                                                                                                                                                                                                                                                                                                                                                                                             260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          620
                                                                GGTGCCAAAAGATTGCTTGTTGTTGTTTCTTAACAACAACAATCTCGAGCTTCACTC
                                                                                                                                         TATGTAGATGACAGCTTAGTTGACTGGGCACGACCATTGCTTAACCGAGCATCTGAGCAA
                                                                                                                                                                                                                                                                                                                                                               SerSerGluGlyGlnThrThrArgGluMetGluMetGlyLysIleLysArgThrGlyGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGCAGCGAGGCCCAAACCACACGCGAAATGGAGATGGGGAAGATTAAGAGAACCGGTCAG
GCTGTGAAGCAGTTGAAAGTTGGGAGTGGTCAGGGAGAGAGGGGAGTTTCAGGCAGAGTT
                 GlullelleSerArgValHisHisArgHisLeuValSerLeuValGlyTyrCysIleAla
                                   GlyAlaLysArgLeuLeuValTyrGluPheValProAsnAsnAsnLeuGluLeuHisLeu
                                                                                          HisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySer
                                                                                                     CATGGCGAGGGACGGCCTACAATGGAATGGAGCACCAGATTGAAGATTGCTCTTGGATCT
                                                                                                                              AlaLysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAspIle
                                                                                                                                                                  LysAlaSerAsnIleLeuIleAspPheLysPheGluAlaLysValAlaAspPheGlyLeu
                                                                                                                                                                                 AAGGCTTCAAACATATGATAGATTTCAAGTTTGAAGCTAAGGTTGCTGATTTTGGTCTT
                                                                                                                                                                                                      AlaLys1leAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGly
                                                                                                                                                                                                                       GCTAAGATTGCTTCTGATACAACACGCATGTATCAACACGTGTGATGGGAACCTTTGGG
                                                                                                                                                                                                                                          TyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPheSer
                                                                                                                                                                                                                                                                             PheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnVal
                                                                                                                                                                                                                                                                                        TTTGGCGTTGTGTTTTGGAGCTCATTACTGGACGTCGACCCCGTTGATGTC
                                                                                                                                                                                                                                                                                                                  TyrvalAspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGluGIn
                                                                                                                                                                                                                                                                                                                                                      GlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMet
                                                                                                                                                                                                                                                                                                                                                                                          AlaArgMetValAlaCysAlaAlaAlaCysValArgHisSerAlaArgArgArgProArg
                                                                                                                                                                                                                                                                                                                                                                                                     GCTCGCATGGTTGCTTGTGCTGCGGCTTGTGTTCGCCATTCAGCTCGCCGCAGACCTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                            MetSerGlnIleValArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGly
                                                                                                                                                                                                                                                                                                                                                                                                                                            ATGAGCCAGATTGTGCGTGCGTTAGAAGGAAATGTATCACTGTCAGATCTTAACGAAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MetArgProGlyGlnSerAsnValTyrSerSerTyrGlyGlySerThrAspTyrAspSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <u> argagaccagercaagcaargraracagcrcaracggaggaagcaccgarrargacrcg</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SerginTyrAsnGluAspMetLysLysPheArgLysMetAlaLeuGlyThrGlnGluTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <u>AGCCAGTACAATGAAGACATGAAGAAGTTTAGGAAAAATGGCACTTGGAACTCAAGAGTAC</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AsnAlaThrGlyGluTyrSerAsnProThrSerAspTyrGlyLeuTyrProSerGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AACGCCACGGGTGAGTACAGTAATCCGACCAGTGACTATGGACTGTACCCGTCTGGTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyTyrSerGlyProSerLeu
                                                                        1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1861
                                   961
                                                       341
                                                                                                            1081
                                                                                                                              381
                                                                                                                                                1141
                                                                                                                                                                  401
                                                                                                                                                                                   1201
                                                                                                                                                                                                      421
                                                                                                                                                                                                                        1261
                                                                                                                                                                                                                                          441
                                                                                                                                                                                                                                                           1321
                                                                                                                                                                                                                                                                                                1381
                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                    1441
                                                                                                                                                                                                                                                                                                                                                                         1501
                                                                                                                                                                                                                                                                                                                                                                                          521
                                                                                                                                                                                                                                                                                                                                                                                                             1561
                                                                                                                                                                                                                                                                                                                                                                                                                              541
                                                                                                                                                                                                                                                                                                                                                                                                                                                1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1921
                                                                                          361
                                                                                                                                                                                                                                                                              461
                                                                                                                                                                                                                                                                                                                                                       501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              621
                  321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                       g
                                                                                                                                                                               g
                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                       상 원
                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                       d
                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                            임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    엄
                 8
                               엄
                                                    ò
                                                                   g
                                                                                     ઠે
                                                                                                                           õ
                                                                                                                                          g
                                                                                                                                                          õ
                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
```

ACF36549 standard; cDNA; 2189 BP.

ACF36549 ID ACF3

```
The invention relates to producing a transgenic plant having increased plant height, number of branches, number of seed pods and/or seed production compared to a non-transgenic plant, and/or quicker flowering or later senescence compared to a non-transgenic plant. The method involves transforming a plant with a vector including a Proline-rich Extensin-like Receptor Kinase (PERK) nucleic acid molecule naving PERK activity. The method, as well as the PERK nucleic acid molecule having perk activity. The method, as well as the PERK resistance to wounding and polypeptide, are useful in increasing plant resistance to wounding and palabogens and in increasing plant set is production. The nucleic acid molecule and polypeptide may also be used in producing transgenic plants or transgenic host cells. The present polypeptide
                                                                                                                                                                                                                                                                                /*t.e.sos
/*tote= "ABR82938; this protein contains the amino acids
/note= "ABR82938; this protein contains the amino acids
corresponding to 5' and 3'UTR regions, though only the
relevant aa residues (ABR82937) is used in the invention"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Producing a transgenic plant having an increased plant resistance, plant growth or seed production comprises transforming a plant with a nucleic acid molecule having a Proline-rich Extensin-like Receptor Kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'note= "ABR82937; proline-rich Extensin-like Receptor
                                                                                                 transgenic; plant; proline-rich extensin-like receptor kinase; pathogen resistance; plant growth; seed production; gene; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     97. _2040
/trag= b
/rransl except= (pos: 1332. .1334, aa:
/product= "PERK1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ë
                                                  receptor kinase encoding cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 494 G;
                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Disclosure, Fig 1D; 123pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Haffani YZ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ΰ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    544 A; 592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28-FEB-2002; 2002CA-02373903.
28-FEB-2002; 2002US-00086464.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        28-FEB-2003; 2003WO-CA000274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2041. .2189
/*tag= d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5e-93
3453.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             P-PSDB; ABR82937, ABR82938.
                                                                                                                                                                                                                                                                                                                                                                                                                              IG= a.
(first entry)
                                                                                                                                                                                                                                                             .2189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kinase"
                                                                                                                                                                                                                                                                                                                                                                                                                              *tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Goring D, Silva N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2003-712727/67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SILVA N.
HAFFANI Y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (GORI/) GORING D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO2003072763-A1
                                                  napus PERK1
                                                                                                                                                                                       Brassica napus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment Scores:
Pred. No.:
Score:
18-DEC-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   04-SEP-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
```

1 3 1	Oy 361 HisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySer 380	1237 GCTAAAGGACTTTCTTATCTTCATGAGATTGCAATCCTAAAATCATTCACCGTGATATC	401 LysalaSerasnileLeuileAspPheLysPheGlualaLysValAlaAspPheGlyLeu 	Qy 421 AlaLysileAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGly 440	Qy 441 TyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPheSer 460	Qy 461 PheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnVal 480		Oy 501 GlyaspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMet 520	Qy 521 AlaArgMetValAlaCysAlaAlaAlaCysValArgHisSerAlaArgArgArgAroArg 540	Qy 541 MetSexGlnIleValArgAlaLeuGluGlyAsnValSexLeuSerAspLeuAsnGluGly 560	Qy 561 MetargProGlyGlnSerAsnValTyrSerSerTyrGlyGlyGlySerThraspTyrAspSer 580	Qy 581 SerGlnTyrasnGluAspMetLy8Ly8PheArgLy8MetAlaLeuGlyThrGlnGluTyr 600 1837 AGCCAGTACAATGAAGACATGAAGAAATGAAAATGAAGACTAC 1896	Qy 601 AsnAlaThrGlyGluTyrSerAsnProThrSerAspTyrGlyLeuTyrProSerGlySer 620 .	Qy 621 SerSerGluGlyGlnThrThrArgGluMetGluMetGlyLysIleLysArgThrGlyGln 640	Oy 641 GlyTyrSerGlyProSerLeu 647	RESULT 4 ACF36557 ID ACF36557 standard; DNA; 1959 BP.	XX AC ACF36557; ·
Percent Similarity: 100.00% Conservative: 0 Best Local Similarity: 100.00% Mismatches: 0 Query Match: 100.00% Indels: 0 DB: 9 Gaps: 0 US-10-086-464-2 (1-647) x ACF36549 (1-2189)	1 MetSerSerAlaProSerPro 	21 ThrThrThrProProProAlaSerAlaProProProThrThrProSerSerProPro94 40	41 ProSerThrIleProThrSerProProSerSerArgSerThrProSerAlaProPro 60	ProSerProProThrProSerThrProdlySerProProProLeuProdlnProSerPro 	ProalaProThrThrPro61ySerProProalaProValThrProProThrArgAsnPro	ProProSerValProGlyProProSerAsnProSerArgGluGlyGlySerProArgPro	ProSerSerProSerProProSerProSerSerAspGlyLeuSerThrClyValValVal 	GlylleAlaileGlyGlyValAlaLeuLeuValIleValThrLeuIleCysLeuLeuCys	Sorbiceconiceconesses in the control of the control	GlyProLyselaGlyGlyProTyrGlyGlyGlnGlnGlnGlnTrpArgGlnGlnAsnAla 	ThrProProSerAspHisValValThrSerLeuProProProProLysAlaProSerPro	ProArgGlnProProProProProProProPheMetSerSerSerGlyGlySerAsp [TyrSerAspArgProValLeuProProSerProGlyLeuValLeuGlyPheSerLys	AAA 	DeuglyGlnGlyGlyPheGlyTyrValHisDysGlyValLeuProSerGlyDysGluVal	AlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluVal	997 GCTGTGAAGCAGTTGAAAGTTGGGAGTGGTCAGGGAGAGAGA

```
1117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        328
                                                                                                                                                                             460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   408
75
                  229
                                      95
                                                          286
                                                                              114
                                                                                                343
                                                                                                                   132
                                                                                                                                        100
                                                                                                                                                           152
                                                                                                                                                                                                                     520
                                                                                                                                                                                                                                        190
                                                                                                                                                                                                                                                           580
                                                                                                                                                                                                                                                                               209
                                                                                                                                                                                                                                                                                                  640
                                                                                                                                                                                                                                                                                                                      229
                                                                                                                                                                                                                                                                                                                                        697
                                                                                                                                                                                                                                                                                                                                                             248
                                                                                                                                                                                                                                                                                                                                                                                757
                                                                                                                                                                                                                                                                                                                                                                                                    268
                                                                                                                                                                                                                                                                                                                                                                                                                                          288
                                                                                                                                                                                                                                                                                                                                                                                                                                                             877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                        g
                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
            ద
                                ò
                                                     g
                                                                                            g
                                                                                                               ò
                                                                                                                                     g
                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                 요
                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                             ઠ
                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                    The invention relates to producing a transgenic plant having increased plant height, number of branches, number of seed pods and/or seed production compared to a non-transgenic plant, and/or quicker flowering or later senescence compared to a non-transgenic plant. The method involves transforming a plant with a vector including a Proline-rich Extensin-like Receptor Kinase (PERK) nucleic acid molecule or a nucleic acid molecule having PERK activity. The method, as well as the PERK nucleic acid molecule and polypeptide, are useful in increasing plant resistance to wounding and pathogens and in increasing plant growth and seed production. The nucleic acid molecule and polypeptide may also be used in producing transgenic plants or transgenic host cells. The present sequence represents an A. thaliana PERKI DNA (At3924550)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             74
                                                                                                                                                                                                                                                   plant
                                                                                                                                                                                                                                                 an increased plant resistance, plant
transforming a plant with a nucleic
Extensin-like Receptor Kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AACTCGACAACCACCACTCCTCCTCCAGCAGCCTCTTCTCCTCCTCCCACACACTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----GlySerProProSerProProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerAlaProProProThrThrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerSerProProPro---ProSerThr1leProThrSerProProSerSerArgSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ThrProSerAlaProProSerProProThrProSerThrProGlySerProProPro
                            PERK1; transgenic; plant; proline-rich extensin-like receptor kinase; wound; pathogen resistance; plant growth; seed production; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 1959 BP; 496 A; 514 C; 425 G; 524 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1959
574
24
41
21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
Conservative:
Mismatches:
Indels:
           protein encoding genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AsnSerThrThrThrProProProAla----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MetSerSerAlaProSerProGlyThr--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (1-1959)
                                                                                                                                                                                                                                                Producing a transgenic plant having growth or seed production comprises acid molecule having a Proline-rich
                                                                                                                                                                                                                                                                                                    Disclosure; Fig 21d; 123pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-086-464-2 (1-647) x ACF36557
                                                                                                                                                                                                           Haffani
                                                                                                                    2003WO-CA000274
                                                                                                                                        28-FEB-2002; 2002CA-02373903.
28-FEB-2002; 2002US-00086464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5.28e-78
2936.50
90.61%
86.97%
85.04%
                                                          Arabidopsis thaliana.
                                                                                                                                                                              (SILV/) SILVA N.
(HAFF/) HAFFANI Y 2.
                                                                                                                                                                                                           Silva N,
                                                                                                                                                                                                                               WPI; 2003-712727/67
          thaliana PERK1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Percent Similarity:
Best Local Similarity:
                                                                                                                                                                    (GORI/) GORING D.
                                                                              WO2003072763-A1.
                                                                                                                    28-FEB-2003;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment Scores:
Pred. No.:
                                                                                                 04-SEP-2003
                                                                                                                                                                                                           Ď,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                           Goring
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best L
Query
 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
```

```
1056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (237 GATTICAAATTIGAAGCTAAGGTIGCIGACTTIGGICTIGCCAAGATTGCTTCTGATACA 1296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       307
                                    285
                                                                                                                                                         131
                                                                                                                                                                                              399
                                                                                                                                                                                                                                     151
                                                                                                                                                                                                                                                                          459
                                                                                                                                                                                                                                                                                                                   169
                                                                                                                                                                                                                                                                                                                                                     519
                                                                                                                                                                                                                                                                                                                                                                                            189
                                                                                                                                                                                                                                                                                                                                                                                                                                   579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAla 447
  94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TyrValHisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1057 TATGAGTTTCTTCCAAACAACAACTTGAGTTTCACCTCCATGGTAAGGGACGCCTACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HisGluAspCysAsnProLys1le1leHisArgAsp1leLysAlaSerAsn1leLeu1le
                      ProProPro---PheMetSerSerGlyGlySerAspTyrSerAspArgProValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ProProProSerProGlyLeuValLeuGlyPheSerLygSerThrPheThrTyrGluGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCTCCACCATCTCCAGGGCTTGTGTTAGGCTTTTCTAAAAGCACTTTCACTTATGAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TATGTGCATAAAGGTATATTGCCTAGTGGGAAAGAAGTTGCTGTGAAACAGTTGAAAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HisArgHisLeuValSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MetGluTrpSerThrArgLeuLys1leAlaLeuGlySerAlaLysGlyLeuSerTyrLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AspPheLysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThr
LeuProGlnProSerProProAlaProThrThrProGlySerProProAlaProValThr
                                                                               ProProThr -- - ArgAsnProProProSerValProGlyProProSerAsnProSerArg
                                                                                                                  cccrcaaacccrccaagcccrccarcrcaagcaaggaccaaggaccaccaccaccaccacca---
                                                                                                                                                           GluGlyGlySerProArgProProSerSer----ProSerProProSerProSerSer
                                                                                                                                                                                                                                     AspGlyLeuSerThrGlyValValValGlyIleAlaIleGlyGlyValAlaLeuLeuVal
                                                                                                                                                                                                                                                                          GATGGATTGTCTACCGGAGTTGTGGTAGGAATCGCCATTGGAGGAGTCGCTATTCTTGTT
                                                                                                                                                                                                                                                                                                                   11eValThrLeuIleCysLeuLeuCysLysLysLysArgArgArg-----AspGluGlu
                                                                                                                                                                                                                                                                                                                                       170 AspalaTyrTyrValProProProProProGlyProLysAlaGlyGlyProTyrGly
                                                                                                                                                                                                                                                                                                                                                                                                                   ---HisValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ThrserLeuProProProLysAlaProSerProProArgGlnProProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACGTCATTG---CCACCACCTAAGCCTCCATCTCCACCACGAAAACCTCCTCCGCCACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ccaccaccaggarrcargagragcagraggragragragacrarrcagarcrrcaggricrr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    817 TIGTCGAGAGCTACTAATGGCTTCTCTGAGGCTAATTTGTTAGGACAAGGAGGGTTTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TyrGluPheValProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyGlnGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAsp
```

```
99US-0128714P.
99US-0120845P.
99US-0130610P.
99US-0130610P.
99US-0130610P.
99US-0131449P.
99US-0132487P.
99US-0132487P.
99US-0132487P.
99US-0132487P.
99US-0132487P.
99US-0132487P.
99US-0132487P.
99US-0134219P.
99US-013421P.
99US-013422P.
99US-013422P.
99US-013422P.
99US-013422P.
99US-013422P.
99US-013422P.
99US-0134370P.
99US-013602P.
99US-013602P.
99US-013602P.
99US-013602P.
99US-013602P.
99US-013602P.
99US-013602P.
99US-013602P.
99US-013602P.
99US-013602P.
99US-013602P.
99US-013602P.
99US-013604P.
99US-0136640P.
99US-0136640P.
99US-0136640P.
99US-0136640P.
99US-0136640P.
99US-0136640P.
99US-0136640P.
99US-0136640P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0139459P.
99US-0139460P.
99US-0139461P.
99US-0139461P.
99US-0139463P.
99US-0139763P.
99US-0139917P.
99US-0140353P.
99US-0140353P.
99US-0140353P.
99US-0140391P.
99US-0141287P.
99US-014287P.
99US-0142154P.
99US-014235P.
99US-0142354P.
99US-014335P.
99US-0144085P.
99US-0144085P.
99US-0144085P.
             16-APR-1999;
19-APR-1999;
21-APR-1999;
23-APR-1999;
23-APR-1999;
30-APR-1999;
                                                                                                                                               06-MAY-1999;
06-MAY-1999;
07-MAY-1999;
11-MAY-1999;
14-MAY-1999;
14-MAY-1999;
14-MAY-1999;
14-MAY-1999;
                                                                                                          30-APR-1999;
04-MAY-1999;
05-MAY-1999;
                                                                                                                                                                                                                                                           18-MAY-1999;
19-MAY-1999;
20-MAY-1999;
                                                                                                                                                                                                                                                                                                  -MAY-1999;
-MAY-1999;
-MAY-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21-JUN-1999;
22-JUN-1999;
23-JUN-1999;
23-JUN-1999;
24-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19-JUL-1999;
19-JUL-1999;
19-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       16-JUN-1999;
17-JUN-1999;
18-JUN-1999;
                                                                                                                                                                                                                                                                                                                                         MAY-1999;
                                                                                                                                                                                                                                                                                                                                                       28-MAY-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18-JUN-1999;
18-JUN-1999;
18-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                   10-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     - JUN-1999
    Tradaadgaaargrarcdcrgrcrgarcrraacgaagggargagaccggrcacagcaac 1716
                                                                                                                                                                                                      527
                                                                                            LeulleThrGlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuVal 487
                                                                                                                                                                                                                                                         AlaalaCysValArgHisSerAlaArgArgArgProArgMetSerGlnIleValArgAla 547
                                                                                                                                                                                                                                                                                                             LeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsn 567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | AsnProThrSerAspTyrGlyLeuTyrProSerGlySerSerGluGlyGlnThrThr 627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hybridisation assay; genetic mapping; gene expression control; protein identification; signal transduction pathway; metabolic pathway; promoter; termination sequence; ss.
                                                                                                                                                                                                   CTTATTACTGGGAGGGCCCCTGTTGATGCGAACAATGTCTATGTAGATGACAGCTTAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Arabidopsis thaliana DNA fragment SEQ ID NO: 15710.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-0121825P.
99US-0123180P.
99US-012548P.
99US-0126264P.
99US-0126765P.
99US-0127462P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAC36968 standard; DNA; 2324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000EP-00301439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17-OCT-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      25-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25-FEB-1999;
05-MAR-1999;
09-MAR-1999;
23-MAR-1999;
25-MAR-1999;
01-APR-1999;
06-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EP1033405-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             06-SEP-2000
               1297
                                                                  1357
                                                                                                                     1417
                                                                                                                                                   488
                                                                                             468
                                                                                                                                                                           1477
                                                                                                                                                                                                                                                                                  1597
                                                                                                                                                                                                                                                                                                                                      1657
                                         448
                                                                                                                                                                                                                               1537
                                                                                                                                                                                                                                                                                                                                                                                           1717
                                                                                                                                                                                                      508
                                                                                                                                                                                                                                                           528
                                                                                                                                                                                                                                                                                                              548
                                                                                                                                                                                                                                                                                                                                                                   268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAC36968;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAC36968

ID AAC3

AC AAC3

XX AC AAC3

XX AC AAC3

XX AC AC3

XX AC ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX ACC

XX A
                                                                                                              음
                                                                                                                                                                 6 음
                                                                                                                                                                                                                        g
                                        5 6 5
                                                                                                                                               ઠે
                                                                                                                                                                                                                                                        8 8
                                                                                                                                                                                                                                                                                                    8 6
                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ያ ያ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
```

ઠે

કે

9US-01443349 9US-01443349 9US-01443529 9US-014463529 9US-01446146359 9US-01448149 9US-014508649 9US-014508679 9US-014508679 9US-014508679 9US-014508979 9US-014508979 9US-014508979	9US-0145913F 9US-0145913F 9US-0145919F 9US-0146386F 9US-01463886F 9US-0147203F 9US-0147203F 9US-0147192F 9US-0147430F 9US-0147435F 9US-0148346F 9US-0148368F 9US-0148368F 9US-0149368F 9US-0149368F 9US-0149368F 9US-0149368F 9US-0149368F 9US-0149368F	99US-0149929P. 99US-0149902P. 99US-0149902P. 99US-015066P. 99US-0151066P. 99US-0151066P. 99US-0151080P. 99US-0151303P. 99US-0151303P. 99US-0151303P. 99US-0151303P. 99US-0151303P. 99US-0151303P. 99US-0151303P. 99US-0151303P. 99US-0151303P. 99US-0151303P. 99US-0151303P. 99US-015130P. 99US-015130P. 99US-015130P. 99US-0155658P. 99US-0156658P.	9US-015929
9-70L-1999999999999999999999999999999999999	7-Juli-1999 7-Juli-1999 8-Juli-1999 8-Juli-1999 8-Juli-1999 8-Juli-1999 8-Juli-1999 8-Juli-1999 9-Juli-1999 9-Juli-1999 9-Juli-1999 9-Juli-1999 9-Juli-1999 8-Juli-1999 8-Juli-1999 8-Juli-1999 8-Juli-1999 8-Juli-1999 8-Juli-1999	20-AUG-1999; 23-AUG-1999; 23-AUG-1999; 25-AUG-1999; 27-AUG-1999; 27-AUG-1999; 27-AUG-1999; 31-AUG-1999; 31-AUG-1999; 31-AUG-1999; 31-AUG-1999; 31-AUG-1999; 31-AUG-1999; 31-AUG-1999; 31-AUG-1999; 31-AUG-1999; 31-AUG-1999; 31-AUG-1999; 31-AUG-1999; 32-SEP-1999; 32-SEP-1999; 32-SEP-1999; 33-AUG-1999; 33-AUG-1999; 34-OCT-1999; 34-OCT-1999; 34-OCT-1999; 35-OCT-1999; 36-OCT-1999; 36-OCT-1999; 37-OCT-1999; 38-OCT-1999; 39-OCT-1999;	3-OCT-1999
######################################	Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z	***************************************	PR

	2324 570 26 42 23
	Length: Matches: Conservative: Mismatches: Indels: Gaps:
99US-0159295P. 99US-0159329P. 99US-0159310P. 99US-0159311P. 99US-0159637P. 99US-0159637P. 99US-0160767P. 99US-0160767P. 99US-0160767P. 99US-0160768P. 99US-0160768P. 99US-0160768P. 99US-0160818P. 99US-0160818P. 99US-0160818P. 99US-0160818P. 99US-0160818P. 99US-016185P. 99US-016185P. 99US-016185P. 99US-016185P. 99US-0161360P. 99US-0161360P. 99US-0161360P. 99US-0161360P.	1.88e-76 2885.00 90.30% ty: 86.36% 3
PR 13-0CT-1999; PR 14-0CT-1999; PR 14-0CT-1999; PR 14-0CT-1999; PR 14-0CT-1999; PR 21-0CT-1999; PR 21-0CT-1999; PR 21-0CT-1999; PR 21-0CT-1999; PR 22-0CT-1999; PR 22-0CT-1999; PR 22-0CT-1999; PR 22-0CT-1999; PR 22-0CT-1999; PR 22-0CT-1999; PR 22-0CT-1999; PR 22-0CT-1999; PR 23-0CT-1999; PR 26-0CT-1999; PR 26-0CT-1999;	Alignment Scores: Pred. No.: Score: Percent Similarity: Best Local Similarity: Query Match:

red. No.:	1.88e-76	Length:
'n	2885.00	Matches:
	90.30%	Conservat
Sest Local Similarity:	86.36%	Mismatche
	83.55%	Indels:
. <u>.</u>	Э	Gaps:

(1-2324)
x AAC36968
(1-647)
0-086-464-2

us-10-086-464-2.p2n.rng

```
standard; DNA; 1812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28-FEB-2003; 2003WO-CA000274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Haffani
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             28-FEB-2002; 2002CA-02373903
28-FEB-2002; 2002US-00086464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SILVA N.
HAFFANI Y Z.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Silva N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 2003-712727/67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO2003072763-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GORING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Oryza sativa.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18-DEC-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            04-SEP-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'n
                   1697
                                                  548
                                                                                  1757
                                                                                                                   268
                                                                                                                                                  1817
                                                                                                                                                                                   588
                                                                                                                                                                                                                   1877
                                                                                                                                                                                                                                                  608
                                                                                                                                                                                                                                                                                                                     628
                                                                                                                                                                                                                                                                                                                                                      1997
                                                                                                                                                                                                                                                                                                                                                                                                                      ACF36554
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACF36554;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       activity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (SILV/)
(HAFF/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (GORI/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              wound;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Goring
                                                                                                                                                                                                                                                                                                                                                                                                       ACF36554

LID ACF7

AC ACF7

XXX

AC ACF7

XXX

AC ACF7

XXX

XXX

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

AC ACF7

                                                                                                                                                                              8 8 8
                                      ठ
                                                                       8 8
                                                                                                                                        셤
                                                                                                                                                                                                                                                                           용
                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGGAGTGGTCAGGGAGAGAGAGAGTTTCAGGCTGAGGTTGAGATTCATTAGCAGAGTTCAT 1097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1577
                                                                                                                                                                                                                                                                                                                                                                                                                                        TATGTGCATAAAGGTATATTGCCTAGTGGGAAAGAAGTTGCTGTGAAACAGTTGAAAGCT 1037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GATITICAAATITIGAAGCIAAGGITGCIGACITITIGGICITIGCCAGGATIGCITCIGATACA 1397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AACACTCATGTATCTACACGCGTGATGGGAACCTTTGGGTATTTGGCTCCAGAATATGCT 1457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GATTCAAAGATGGGTAATGAGTATAG-AGAGAGAGATGGCTCGCATGGTTGCTTGCGCT 1696
                                                                                                                                                                                                                                                                                                                                    287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           347
                                 680
                                                                  208
                                                                                                                               ThrSerLeuProProProLysAlaProSerProProArgGlnProProProPro 228
                                                                                                                                                                                                                                                                                                                                                      TyrValHisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysVal 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TyrGluPheValProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThr 367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MetGluTrpSerThrArgLeuLysIleAlaLeuGlySerAlaLysGlyLeuSerTyrLeu 387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HisGluAspCysAsnProLysIleIleHisArgAspIleLysAlaSerAsnIleLeuIle 407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        527
                                                                                                                                                                  797
                                                                                                                                                                                                 ProProPro---PheMetSerSerSerGlyGlySerAspTyrSerAspArgProValLeu 247
                                                                                                                                                                                                                                   857
                                                                                                                                                                                                                                                                  | ProProProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGlu 267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         528 AlaAlaCysValArgHisSerAlaArgArgArgProArgMetSerGlnIleValArgAla 547
                                                                                                                                                                                                                                                                                     CCTCCACCATCTCCAGGCTTGTGTTTAGGCTTTTCAAAAAGCACTTTCACTTATGAGGAG
                   GCTGCTTACTATGTT----CCTCCTCCTCCTTCTGGTCCCAAAGCTGGAGGACGACCTTACGGT
                                                                                   ccaccaccaccarreargagragragregregregregregregrerregarcrreggrerr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCAAGCGGAAAGCTCACAGAAAAGTCTGACGTTTTCTCATTTGGTGTTGTACTTTTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTTATAACCGGGAGGCGCCCTGTTGATGCAAACAATGTCTATGTAGATGACAGCTTAGTT
                                                                                                                                                                                                                                                                                                                                      LeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HisArgHisLeuValSerLeuValGlyTyrCyslleAlaGlyAlaLysArgLeuLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AspPheLysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AlaSerGlyLysLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeulleThrGlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAla
AspAlaTyrTyrValProProProProProProGlyProLysAlaGlyGlyProTyrGly
                                                                GlyGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAsp---HisValval
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CATGAAGATTGCAATCCGAAAATCATTCACCGTGATATTAAGGCGTCAAACATATTGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AspalaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAla
                                                                                                                                                                                                                                                                                                                                                                    918
                                                                                                                                                                                                 229
                                                                                                                                                                                                                                   96/
                                                                                                                                                                                                                                                                    248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1578
                               624
                                                                190
                                                                                                                                 209
                                                                                                                                                                741
                                                                                                                                                                                                                                                                                                   858
                                                                                                                                                                                                                                                                                                                                      268
                                                                                                                                                                                                                                                                                                                                                                                                       288
                                                                                                                                                                                                                                                                                                                                                                                                                                        978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       488
                                                                                                                                                                                                                                                      8 & 8 &
 දු ද
                                                             8 8 8
                                                                                                                                                      음 중 음
                                                                                                                                                                                                                                                                                                                                                                                          6 8 6 8 6 8 6 8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8 6 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8 6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
```

```
1876
                                                                                                                                                                                                                                                                                                                                                                                                                  1936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           647
                                                                                                                                                                                                                         587
                                                                                                                                                                                                                                                                                                                                                       607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Producing a transgenic plant having an increased plant resistance, plant growth or seed production comprises transforming a plant with a nucleic acid molecule having a Proline-rich Extensin-like Receptor Kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The invention relates to producing a transgenic plant having increased plant height, number of branches, number of seed pods and/or seed production compared to a non-transgenic plant, and/or quicker flowering or later senescence compared to a non-transgenic plant. The method involves transforming a plant with a vector including a Proline-rich Extensin-like Receptor Kinase (PERK) nucleic acid molecule or a nucleic acid molecule having PERK activity. The method, as well as the PERK nucleic acid molecule and polypeptide, are useful in increasing plant resistance to wounding and pathogens and in increasing plant seed production. The nucleic acid molecule and seed production also be
transgenic; plant; proline-rich extensin-like receptor kinase; pathogen resistance; plant growth; seed production; rice; gene;
                                                                                                                                                                                                                                                              AsnProThrSerAspTyrGlyLeuTyrProSerGlySerSerGluGlyGlnThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AATCCAACCAGTGACTACGGACTGTACCGTCTGGTTCAAGCAGTGAAGGTCAAGCCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ArgGluMetGluMetGlyLysIleLysArgThrGlyGlnGlyTyrSerGlyProSerLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGAGAAATGGGAGATGGGGAAAGATTAAGAAAACCGGTCAAGGTTATAGTGGACCCTCTTT
                                                                                                                                                                                                                         ValTyrSerSerTyrGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMet
                                                                                                                                                                                                                                                                                                                                                          LysLysPheArgLysMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      genomic DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Disclosure, Fig 21a; 123pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      O. sativa PERK protein encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YZ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BP
```

390

370 954

894

834

1074

1134

1194

450

1254

490

470

```
CAGCCCACCGAGTTCGTCCCGAATCGATCCGTATCAATGGGGGATGCGCGTCAAATACCG 1719
                                                                                                                                 SerThrArgLeuLys1leAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAsp
                                                                                                                                                                                                    SerTyrGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMetLysLysPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                            LeuValSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuValTyrGluPhe
                                     CTTGTAACATTGGTTGGTTATTGCATTTCTGGAGGGAAGAGGGTTGCTTGTCTATGAGTAT
                                                                                                       411 PheGluAlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThrAsnThrHis
                                                                                                                                                                             GlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAla
                                                                                                                                                                                                                                                                                                             ArgProteuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAlaLys
                                                                                                                                                                                                                                                                                                                                              MetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAlaAlaAlaAss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ArgiysMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnProThr
:::
CTAGGACAGGAGTACAATGGTAACGTAGTGGCGAGGATGATTGCTTGTGCAGCTGCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SerAspTyrGlyLeuTyrProSerGlySerSerGluGlyGlnThrThrArg-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAGACGGAGATGGAGATGGGGAGTTTGAAGAAGATGGC 1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----GluMetGluMetGlyLysIleLysArgThrGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                standard; DNA; 1515
                                                                                                                                                                                     1075
                                                                                                                                                                                                                                                                                                                                              511
                                                                                                                                                                                                                                                                                                                                                                                                                                    1495
          775
                           331
                                           835
                                                              351
                                                                                               371
                                                                                                                                 391
                                                                                                                                                   1015
                                                                                                                                                                                                       431
                                                                                                                                                                                                                       1135
                                                                                                                                                                                                                                          451
                                                                                                                                                                                                                                                         1195
                                                                                                                                                                                                                                                                                                              491
                                                                                                                                                                                                                                                                                                                              1315
                                                                                                                                                                                                                                                                                                                                                                                                  1435
                                                                                                                                                                                                                                                                                                                                                                                                                   551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACF36555
                                                                                                                                                                                                                                                                           471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACF36555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 7
ACF36555
ID ACF3
XX
AC ACF3
XX
                                                                                                           6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                8 &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
          8 6 8
                                                           ઠે
                                                                        8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ⋧
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ठे
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                         ProSerSerAspGlyLeuSerThrGlyValValValGlyIleAlaIleGlyGlyValAla 148
                                                                                                                                                                                                                                                                                                                                                                                                        cciccicciccicciccicciccicciccitcaaaddaarcactargcrigddagaraccaaaar 441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysValGlySerGly 310
 used in producing transgenic plants or transgenic host cells. The present sequence represents an O. sativa PERK protein encoding genomic DNA (TIGR Accession No. TC102111)
                                                                                                                                                                                                                                                 AsnProSerArgGluGlyGlySerProArgProProSerSerPro---SerProProSer 128
                                                                                                                                                                                                                                                                                                                                                                                         ProproproproproglyprolysAlaGlyGlyProTyrGlyGlyGlnGlnGln 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHisHisArgHis 330
                                                                                                                                                                                       Pro-----ValThrProProThrArgAsnProProProSerValProGlyProProSer 109
                                                                                                                                            73
                                                                                                                                                                             91
                                                                                                                                                     |||||||
|-----GCGACACGCCT
                                                                                                                                                                                                                                                           ACC-----ACGCCCTCCTCGCCGCGGGGGGGGG
                                                                                                                                                                                                                                                                                              LeuLeuValIleValThr----LeuIleCysLeuLeuCysLysLysArgArgArg
                                                                                                                                                                                                                                                                                                                                SerThrProSerAlaProProProPerProProThrProSerThrProGlySerProPro
                                                                                                                                                                             ProLeuProGlnProSer-----ProProAlaProThrThrProGlySerProProAla
                                                                                                                                                                                                                                                                                                                                                        AspGluGluAspAla------Val
                                                                                                                                                                                                                                                                                                                                                                        caccaccercecececececececececececerecrecraciaciaceacecece
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ProLygAlaProSerProProArgGlnProProProProProProProProPheMetSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SerSerGlyGlySerAspTyrSer------AspArgProValLeuProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGTGGTTCTGGCTCAAATTACTCCGGTGGCGACAACAGCCAACCTCTAGTG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGluLeuAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrValHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGACCGATGGATTCTCCGATGCTAATCTGCTCGGACAGGGCGGTTTTGGGTATGTTCAC
                                   Sequence 1812 BP; 409 A; 487 C; 512 G; 404 T; 0 U; 0 Other;
                                                             1812
370
69
119
55
                                                             Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                     ||||:::||||||||:::||||||||||||:::
|TGGTCGCCGTCGTCGCCGCCGCCGGCTAACCAGACG-
                                                                                                                         (1-1812)
                                                                                                                         US-10-086-464-2 (1-647) x ACF36554
                                                             1.6e-45
1821.50
71.62%
60.36%
52.75%
                                                                  Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                     Scores:
                                                                                                                                                                                                                                                                                                                                                        167
                                                                                                                                                            4
                                                                                                                                                                                                                                                                  691
                                                                                                                                                                             74
                                                                                                                                                                                               22
                                                                                                                                                                                                                                112
                                                                                                                                                                                                                                                 110
                                                                                                                                                                                                                                                                                   129
                                                                                                                                                                                                                                                                                                                      149
                                                                                                                                                                                                                                                                                                                                                                                                           382
                                                                                                                                                                                                                                                                                                                                                                                                                                              442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        311
                                                                                                                                                                                                                92
                                                                                                                                                                                                                                                                                                                                                                        322
                                                                                                                                                                                                                                                                                                                                                                                          175
                                                                                                                                                                                                                                                                                                                                                                                                                            195
                                                                                                                                                                                                                                                                                                                                                                                                                                                              215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       715
 88888
                                                                                                                                                                      g
                                                                                                                                           8
```

1314

1374

510

1434

1494

1659

610

384

264 318 324 358

444 378 504 398

564 418 438

684

624

458

498

864

804

518

924

538

984

```
GATTCTGGCCAGTACAACGAGGACATGAAGAAGTTCAAGAAGATGGCATTCAACAACAAC 1161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PheSerPheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsn 478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               daadergrucescerescearadececrrerresereare---accaerecarrae 1101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlysersersergluglyGlnThrThrArgGluMetGluMetGlyLysIleLysArgThr 638
                                       539 ProArgMetSerGlnIleValArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AspSerSerGlnTyrAsnGluAspMetLysLysPheArgLysMetAlaLeuGlyThrGln
IlealaGlyalaLysargLeuLeuValTyrGluPheValProAsnAsnLeuGluLeu
                                                                                                                                                                GlySerAlaLysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArg
                                                                                                                                                                                                                                                                                                             AspileLysAlaSerAsnileLeuileAspPheLysPheGluAlaLysValAlaAspPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAAACATATATGGATGACAGCTTGGTTGACTGGCCAAGGCCATTACTGATGCGAGCACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GluGlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnAspArAspArgGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAGATGGCAAGAATGATAGCCTGTGCAGCTGCATGTGTACGCCATTCTGCACGTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCACGTATGAGTCAGGTCGTCGGGCTTTGGAGGGCAATGTGTTTTGGAGGACCTTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GluGlyMetArgProGlyGlnSerAsnValTyrSerSerTyrGlyGlyGerThrAspTyr
                                                                                             GluValGluIleIleSerArgValHisHisArgHisLeuValSerLeuValGlyTyrCys
                                                                                                                                                                                                        HisleuHisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeu
                                                                                                                                                                                                                                                                           GACATAAAAGGCATCTAACATTCTTCTTGACTTCCAATTTGAAGCTAAGGTTGCTGATTTT
                                                                                                                                                                                                                                                                                                                                                                                    GGACTCGCAAAGTTCACTACTGATAACAACACCCCATGTATCGACAAGAGTAATGGGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTTGGGTATTTGGCACCTGAGTATGCATCTTCTGGCAAGCTAACAGAAAATCCGATGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AsnValTyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSer
                                                                                                                                                                                                                                                                                                                                                                    GlyLeuAlaLysIleAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThr
                                                                                                                                                                                                                                                                                                                                                                                                                          PheGlyTyrLeuAlaProGluTyrAlaAlaSerGlyLy9LeuThrGluLy9SerAspVa1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GluMetAlaArgMetValAlaCysAlaAlaAlaAlaCysValArgHisSerAlaArgArgArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GluTyrAsnAlaThrGlyGluTyrSerAsnProThrSerAspTyrGlyLeuTyrProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----GlnGlyTyrSerGlyProSer 646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  =
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         G1y-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           579
               205
                                        299
                                                                   265
                                                                                             319
                                                                                                                       325
                                                                                                                                                  339
                                                                                                                                                                            385
                                                                                                                                                                                                        359
                                                                                                                                                                                                                                445
                                                                                                                                                                                                                                                            379
                                                                                                                                                                                                                                                                                     505
                                                                                                                                                                                                                                                                                                                399
                                                                                                                                                                                                                                                                                                                                           565
                                                                                                                                                                                                                                                                                                                                                                    419
                                                                                                                                                                                                                                                                                                                                                                                               625
                                                                                                                                                                                                                                                                                                                                                                                                                          439
                                                                                                                                                                                                                                                                                                                                                                                                                                                   685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1162
                                                            원
                                                                                                                셤
                                                                                                                                                                       입
                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                        g
                                &
                                                                                           ઠે
                                                                                                                                                 8
                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ठे
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ਨੇ
                                                                                                                                                                                                                                                                                                                                                                                                                                                            The invention relates to producing a transgenic plant having increased plant height, number of branches, number of seed pods and/or seed production compared to a non-transgenic plant, and/or quicker flowering or later sensescence compared to a non-transgenic plant. The method involves transforming a plant with a vector including a Proline-rich Extensin-like Receptor Kinase (PERK) nucleic acid molecule or a nucleic acid molecule having PERK activity. The method, as well as the PERK nucleic acid molecule and polypeptide, are useful in increasing plant resistance to wounding and pathogens and in increasing plant seed production. The nucleic acid molecule and polypeptide may also be used in producing transgenic plants or transgenic host cells. The present sequence represents a Z. mays PERK protein encoding genomic DNA (TIGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |||:::|||||||
|TCTAATTACTCTGGCGGCGAGATCCTACCTCCACCATCCCCTGGAGCTGTTCTTGGCTTC 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SerLysSerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAla 278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               279 AsnLeuLeuGlyGlnGlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLys 298
                                                                                                                                                                                                                                                                                                                                                                  ucing a transgenic plant having an increased plant resistance, plant th or seed production comprises transforming a plant with a nucleic molecule having a Proline-rich Extensin-like Receptor Kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  84
                                                     PERK1; transgenic; plant; proline-rich extensin-like receptor kinase; wound; pathogen resistance; plant growth; seed production; maize; gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerAspTyrSerAspArgProValLeuProProProSerProGlyLeuValLeuGlyPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ProArgGlnProProProProProProProPheMetSerSerSer-----GlyGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C; 381 G; 404 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1515
321
43
59
12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
Matches:
Conservative:
Mismatches:
                            protein encoding genomic DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-086-464-2 (1-647) x ACF36555 (1-1515)
                                                                                                                                                                                                                                                                                                                                                                                                                                       Disclosure; Fig 21b; 123pp; English.
                                                                                                                                                                                                                                                                                                                Haffani YZ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 1515 BP; 400 A; 330
                                                                                                                                                                                        28-FEB-2003; 2003WO-CA000274
                                                                                                                                                                                                                  28-FEB-2002; 2002CA-02373903.
28-FEB-2002; 2002US-00086464.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4.23e-41
1668.00
83.87%
73.96%
48.31%
 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Accession No. AY108241)
                                                                                                                                                                                                                                                                       SILVA N.
HAFFANI Y Z.
                                                                                                                                                                                                                                                                                                                Silva N,
                                                                                                                                                                                                                                                                                                                                          WPI; 2003-712727/67
                                                                                                                                                                                                                                                           GORING D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity:
                                                                                                                                   WO2003072763-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
 18-DEC-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment Scores:
                                                                                                                                                             04-SEP-2003
                                                                                                                                                                                                                                                                                                                                                                   Producing
growth or
                                                                                                                                                                                                                                                                                                                à
                                                                                                           mays.
                                                                                                                                                                                                                                                                                                                                                                                                             activity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       82
                                                                                                                                                                                                                                                        (GORI/) (SILV/) (HAFF/) )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match:
DB:
                                                                                                                                                                                                                                                                                                                Goring
                                                                                                                                                                                                                                                                                                                                                                                               acid
                                                                                                           Zea
 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
```

1044

558

578

618

ò

à

```
LeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TyrGlyLeuTyrProSerGlySerSerGluGly------GlnThrThrArgGlu
                                                      SerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuValTyrGluPheValPro
                                                                                                                                                                                                                                                      Argleulys11eAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCysAsn
                                                                                                                                                                                                                                                                   CCTAAGATCCATCCATCGTGATATCAAAGCTGCCAACATCCTTCTGGATTTTTAAGTTTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                               ThrGluLysSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThrGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ArgProValAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAlaArgPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SerieuSerAspieuAsnGluGlyMetArgProGlyGlnSerAsnValTyrSerSerTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GluargGluPheGlnAlaGluValGluIleIleSerArgValHisHisArgHisLeuVal
                                                                                                           AsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrpSerThr
                                                                                                                                                                                                                                                                                                        ProLysllelleHisArgAspileLysAlaSerAsnileLeuIleAspPheLysPheGlu
                                                                                                                                                                                                                                                                                                                                                             AlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThrAsnThrHisValSer
                                                                                                                                                                                                                                                                                                                                                                         ThrangvalMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGlyLysLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ceeccercearaaaarcaaacrrrcareeaeearaerrreeraeacreecraeecr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAlaAlaAlaCysValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AATGACTÁTGÁTCCTAATGAGATGGCÁCGÁATGGTGGCTTCTGCTGCGGCTTGCATACGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HisSerAlaArgArgArgProArgMetSerGlnIleValArgAlaLeuGluGlyAsnVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMetLysLysPheArgLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MetalaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnProThrSerAsp
                                         ValLeuProSerGlyLysGluValAlaValLysGlnLeuLysValGlySerGlyGlnGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MetGluMetGlyLys1leLysArgThrGlyGlnGlyTyrSerGlyProSer 646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        783 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      573 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               613
                 63
                                          293
                                                                    123
                                                                                              313
                                                                                                                       183
                                                                                                                                                 333
                                                                                                                                                                          243
                                                                                                                                                                                                    353
                                                                                                                                                                                                                             303
                                                                                                                                                                                                                                                       373
                                                                                                                                                                                                                                                                                 363
                                                                                                                                                                                                                                                                                                          393
                                                                                                                                                                                                                                                                                                                                    423
                                                                                                                                                                                                                                                                                                                                                              413
                                                                                                                                                                                                                                                                                                                                                                                        483
                                                                                                                                                                                                                                                                                                                                                                                                                 433
                                                                                                                                                                                                                                                                                                                                                                                                                                          543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  630
                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                             g
                                                                                             ò
                                                                                                                  유
                                                                                                                                              ò
                                                                                                                                                                       g
                                                                                                                                                                                                   ò
                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                  õ
                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The invention relates to producing a transgenic plant having increased plant height, number of branches, number of seed pods and/or seed production compared to a non-transgenic plant, and/or quicker flowering or later sensecence compared to a non-transgenic plant. The method involves transforming a plant with a vector including a Proline-rich Extensin-like Receptor Kinase (PERK) nucleic acid molecule having PERK activity. The method, as well as the PERK nucleic acid molecule having perk activity. The method, as well as the PERK nucleic acid molecule and polypeptide, are useful in increasing plant resistance to wounding and pathogens and in increasing plant growth and seed production. The nucleic acid molecule and polypeptide may also be used in producing transgenic plants or transgenic host cells. The present sequence represents a G. max PERK EST (expressed sequence tag) partial sequence (TIGR Accession No. TC123698)
                                                                                                                                                              transgenic; plant; proline-rich extensin-like receptor kinase; pathogen resistance; plant growth; seed production; soybean; gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrValHisLysGly 292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Producing a transgenic plant having an increased plant resistance, plant growth or seed production comprises transforming a plant with a nucleic acid molecule having a Proline-rich Extensin-like Receptor Kinase acitivity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGluLeuAlaArgAlaThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGAATTTCATTGGGGTTCTCTAAGAGCACATTCACGTATGAGGAGTTGGCACGCGCAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 412 A; 291 C; 348 G; 437 T; 0 U; 0 Other;
     GGCTACAGTGGTGGCTACAGCTCAGGATACAGCGGAGCCTCG 1317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1488
312
444
36
5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  x ACF36556 (1-1488)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Disclosure; Fig 21c; 123pp; English
                                                                                                                                   max PERK partial EST sequence
                                                         ВР
                                                                                                                                                                                                                                                                                                                                                                                                                  Haffani YZ
                                                         ACF36556 standard; DNA; 1488
                                                                                                                                                                                                                                                                                                                       28-FEB-2002; 2002CA-02373903
28-FEB-2002; 2002US-00086464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3.24e-40
1637.50
89.67%
78.59%
47.42%
                                                                                                                                                                                                                                                                                               28-FEB-2003; 2003WO-CA000274
                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                          (SILV/) SILVA N.
(HAFF/) HAFFANI Y Z.
                                                                                                                                                                                                                                                                                                                                                                                                                  Silva N,
                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 2003-712727/67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-086-464-2 (1-647)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 1488 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                              (GORI/) GORING D.
                                                                                                                                                                                                                                            WO2003072763-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alignment Scores:
Pred. No.:
                                                                                                           18-DEC-2003
                                                                                                                                                                                                                   Glycine max.
                                                                                                                                                                                                                                                                     04-SEP-2003
                                                                                                                                                                                                                                                                                                                                                                                                                  Ď,
     1276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ٣
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               273
                                                                                                                                                              PERK1; wound; ]
                                                                                                                                                                                                                                                                                                                                                                                                                 Goring
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match:
                               œ
                               RESULT
                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
```

1019

592

572 962

782

532 842 552 902 1079

629

132

434

374

165

959

187

710

221 761 239

821 257 881

145

494

```
1242 CTATATATTCAAGAAAGTTGTAACCTTAATTTGTTGTTGTAGGĠAAAAATCTTĊĊĠGTAA 1301
                                                                                                                                                                                                                                                                                                                                                                                                       GCTGGACTTTTGATGATCGTTCTTATTATTGTGTGTCTTAGACGCAAAAAGAAGAAAA 554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TyrGlyGlyGlnGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAspHisVal 207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nAlaGluValGluIleIleSerArgValHisHisArgHisLeuValSerLeuValGlyTy 337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ------Glu-GlyArgProThrM 368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArgAspGluGluAspAlaTyrTyrValProProProProProProGlyProLysAla--- 184
  CCTCCTAAT---TCCTCTAATAACTCTTCCTTCCCTCCGTCACAGGGCGGTGGAGGAGAA 263
                                                                                                                                                    SerValProGlyProProSerAsnProSerArgGluGlyGlySerProArg----Pro
                                                                                                                                                                                                               SerProSerProProSerPro----SerSerAsp
                                                                                                                                                                                                                                                  146 GlyValAlaLeuLeuValIleValThrLeuIleCysLeuLeuCysLysLysLysArgArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProThrThrProGlySerProProAlaProValThrProProThrArgAsnProProPro
                                                                                AGAGGAAATGGAGGAAACAATGGTGGCAATGATACTCCACCGTCACGCGGCTCTCCTCCT
                                                                                                                                                                                                                                                                                         ----LeuSerThrGlyValValValGlyIleAlalleGly
                                                                                                                                                                                                                                                                                                                                     GCAGCTCCACCACCAACAACTAATACCCAATACACCCATCATACTTCCTCTATTACTCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ------GACTCCTTCTAC-----CCTGAACCCATGAAAGGTAAAAACATATAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACACTCTTATGTTTCAACAATAAGAAGCTTAGATTCTTTCATAAATTTCAGGAAACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ------itiggcaccitaaattcacaaggccaaaccaacaatctactggtggtggt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cangracicasgececarcacececeáririracerecirecriedecerererasgecerencies
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TIGCATAGCTGATGGACAGAGGATGTTTATGAGTTTATGAGTTTGTTCCTAACAAAACTTTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ArgGln-ProProProProProProProPheMetSerSerGly-----GlySe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           yPheSerLysSerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            uAlaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrValHisLysGlyValLeuProSerGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 rCyslleAlaGlyAlaLysArgLeuLeuValTyrGluPheValProAsnAsnAsnLeuGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATATCAATACTATGGAAACAACAACAACAACAATGCTTCACAGAATTATCCGAA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             yLysGluValAlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          rAspTyrSer----AspArgProValLeuProProProSerProGlyLeuValLeuGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ValThrSerLeuProProProProLysAlaProSerProPro-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      uLeuHisLeuHisGly-----
                                                                                                                                                                                                             ProSer-----
                                                                                                                                                                                                                                                                                            Gly-----
                                           83
                                                                                   264
                                                                                                                            103
                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                    375
                                                                                                                                                                                                                                                                                            133
                                                                                                                                                                                                                                                                                                                                     435
                                                                                                                                                                                                                                                                                                                                                                                                                          195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       363
                                       ઠે
                                                                        8
                                                                                                                          ò
                                                                                                                                                           요
                                                                                                                                                                                                ઠે
                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                               ે
                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The present invention relates to proline-rich extensin-like receptor kinase (PERK). The PERK nucleic acids and polypeptides are useful for increasing the resistance of plants to wounding and pathogens. These are also useful for producing transgenic plants with increased wounding and pathogen resistance compared with a wild type plant, as well as in assays for identifying and developing compounds to inhibit and/or enhance polypeptide function directly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           New proline-rich, extensin-like receptor kinase nucleic acids and polypeptides useful for increasing plant wounding or pathogen resistance, or for producing transgenic plants with increased wounding or pathogen resistance.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GACTCATCATCATCGCCACCTCCTGATTCCACATCTCCACCAGCTCCACAAGCTCCTAAC 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThrThr 22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ThrProProProAlaSerAlaProProProThrThrProSerSerProProProPer 42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ThrileProThrSerProProSerSerArgSerThrProSerAlaProProSer 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             rericerceaacaaacrecacererrecarerecaceacereraracaare
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProProThrProSerThrProGlySerProProProLeuProGlnProSerProProAla 82
                                                                                                                                                                                                                                                      dß.
                                                                                                                                                                                                                                                  Proline-rich extensin-like receptor kinase; PERK; resistance; plant;
ATGGAAATGAGAAGATGAAG---AACAATCAAGGTTTCAGTGGAAGTTCT 1187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 2520 BP; 717 A; 553 C; 537 G; 713 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2520
368
79
146
244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (1-2520)
                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Example; Fig 12; 91pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            x AAF77096
                                                                                   standard; DNA; 2520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                99US-0149466P
                                                                                                                                                                                                                                                                                                                                                                                                                      18-AUG-2000; 2000WO-CA000966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2.93e-36
1507.00
53.47%
44.02%
                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                            Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 2001-244305/25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Silva N;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-086-464-2 (1-647)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (GORI/) GORING D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SILVA N.
                                                                                                                                                                                                                                                                                                                                   WO200114563-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                19-AUG-1999;
13-OCT-1999;
                                                                                                                                                                                                         Arabidopsis
                                                                                                                                                                 17-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      qnment Scores:
                                                                                                                                                                                                                                                                                                                                                                               01-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Soring D,
                                                                                AAF77096
                                                                                                                          AAF77096;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (SILV/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match:
DB:
                                       RESULT 9

AAPP77096

AAPP77096

XX

XX

XX

XX

DE

BY

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

BY

COS

B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       중
점
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
```

1001

297

941

277

317

1121

1181

```
US-10-086-464-2 (1-647) x ACF36551 (1-2520)
                                                                                                                                                                                                                                                               SILVA N.
HAFFANI Y Z.
                                                                                                                                                                                                                                                                                        Goring D, Silva N,
                                                                                                                                                                                                                                                                                                        2003-712727/67,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity:
                                                                                                                                                                                                                                                         (GORI/) GORING D.
                                                                                                                                                                                                                                                                                                               P-PSDB; ABR82940
                                                                                                                                                                                  WO2003072763-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
Best Local Similari
                                                                                                            18-DEC-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alignment Scores:
                                                                                                                                                                                                   04-SEP-2003.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                             ACF36551;
989
                                                                                                                                                                                                                                                                                                                                                       activity
                                                                                                                                                                                                                                                                        (HAFF/)
                                                                                                                                                                                                                                                                (SILV/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match:
                                                                                                                                                   wound;
                                            셤
                                                                             요
                              ò
                                                                                                                                                                                                                                                                                                                                                                               2018
                                                                                                                                                                                                                                                                                                                                                                                                                                              2138
                                                                                                                                                                                                                                                                                                                                                                                                              2078
                                                      1421
                                                                                                                    1541
                                                                                                                                                    1601
                                                                                                                                                                                    1661
                                                                                                                                                                                                                                                                                                                                        2197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1481
                                                                                                                                                                                                            TAACAACACTCATGTATCTACTCGTGTGATGGGAACTTTCGGGTAAGCGTTTTACCGTAT 1721
                                                                                                                                                                                                                                                                                1782 TTTCCACAACATGTGTAGATATCTAGCTCCAGAATATGCTTCAAGCGGTAAATTAACCG 1841
                                                                                                                                                                                                                                                                                                        2257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2258 AGAGCGTTAGAAGGAGAAGTGTCCTTAGATGCTTTAAACGAAGGTGTGAAGCCAGGACAC 2317
                                                                                                                                                                                                                                                 GATAAGATTGTTCGTGACACTCAAGAAACATAACCTTTGTAGACTAATCTACTTTGCTTC 1781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          585
                                                                                                                                    413
                                                                                                                                                                   426
                                                                                                                                                                                                   440
                                                                                                                                                                                                                                                                 454
                                                                                                                                                                                                                                                                                                474
                                                                                                                                                                                                                                                                                                                                489
                                                                                                                                                                                                                                                                                                                                                               489
                                                                                                                                                                                                                                                                                                                                                                                              508
                                                                                                                                                                                                                                                                                                                                                                                                                             528
                                                                                                                                                                                                                                                                                                                                                                                                                                                             542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             545
                                                                                                   1422 AGAGAAAGCTCTGTCTCTGACTAGTGTTATCTTTTGGCTGAGAAAATGGTGCAGGCCAT
                                                                                                                                                                            2198 TAACTAAAAGTCTATTTTTGTCAGAGAATAACAAACAAATGTTGTGGTTTTTCAGATAGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SerAsnValTyrSerSerTyrGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGlu
      etGluTrpSerThrArgLeuLysIleAlaLeuGlySerAlaLysGlyLeuSerTyrLeuH
                                                      1362 ACGAAGACTGTAAGTTTTTAACATTTCACCATTCTCATTTTCTTAACCAAGTTGCATAAAAC
                                                                                                                                                    -----LysValAlaAspPheGlyLeuAlaLysIleAlaSerAs
                                                                                                                                                                                                    pThrAsnThrHisValSerThrArgValMetGlyThrPhe-Gly------
                                                                                                                                                                                                                                                                  TyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrG
                                                                                                                                                                                                                                                                                                luLysSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThrGlyArgArgP
                                                                                                                                                                                                                                                                                                                                                                               1959 TAACATATGTATCGTGTATATATGTTTTTCGCCTTTTTTCGCGTACTAATGATCATGAATA
                                                                                                                                                                                                                                                                                                                                                                                               ---AlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                              AlaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGAGGCTTGAAGGCAACTACAACCCGCAAGAATGGCTCGAATGGTGACTTGTGCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                              AlaCysValArgHisSerAlaArgArgArgProArgMetSer-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -GlnIleVal
                                                                                                                                                                                                                                                                                                                                roValAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrp-
                                                                       Ala-----
                                       isGluAspCys-
                                                                                                                                                                                                                                                                                                                                                                 .....
                                                                                                                                                                                                                                   440
                       1302
                                                                                                                    1482
                                                                                                                                                                                                                   1662
                                                                                                                                                                                                                                                  1722
                                                                                                                                                                                                                                                                                                                                                                                                                                              2079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2139
       368
                                       388
                                                                      392
                                                                                                     393
                                                                                                                                     413
                                                                                                                                                                    414
                                                                                                                                                                                                    426
                                                                                                                                                                                                                                                                  441
                                                                                                                                                                                                                                                                                                 454
                                                                                                                                                                                                                                                                                                                                474
                                                                                                                                                                                                                                                                                                                                                                489
                                                                                                                                                                                                                                                                                                                                                                                               490
                                                                                                                                                                                                                                                                                                                                                                                                                               509
                                                                                                                                                                                                                                                                                                                                                                                                                                                              529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            999
                    g
                                   ð
                                                    g
                                                               8 6
                                                                                                  ò
                                                                                                                a
                                                                                                                                ò
                                                                                                                                                g
                                                                                                                                                                 ò
                                                                                                                                                                               ያ ያ
                                                                                                                                                                                                               엄
                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                             엄
                                                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                          ⋧
                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                             8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
```

```
The invention relates to producing a transgenic plant having increased plant height, number of branches, number of seed pods and/or seed production compared to a non-transgenic plant, and/or quicker flowering or later senescence compared to a non-transgenic plant. The method involves transforming a plant with a vector including a Proline-rich Extensin-like Receptor Kinase (PERK) nucleic acid molecule or a nucleic acid molecule having PERK aucleic acid molecule and polypeptide, are useful in increasing plant resistance to wounding and pathogens and in increasing plant seed production. The nucleic acid molecule and polypeptide may also be used in producting transgenic plants or transgenic host cells. The present sequence represents a PERKI polypetide celated protein encoding genomic
                                           ---AsnAla 602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Producing a transgenic plant having an increased plant resistance, plant growth or seed production comprises transforming a plant with a nucleic acid molecule having a Proline-rich Extensin-like Receptor Kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PERK1; transgenic; plant; proline-rich extensin-like receptor kinase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             pathogen resistance; plant growth; seed production; gene; ds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2520 BP; 717 A; 552 C; 538 G; 713 T; 0 U; 0 Other;
AspMetLysLysPheArgLysMetAlaLeuGlyThrGlnGluTyr-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2520
367
80
146
244
22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Arabidopsis PERK1 receptor related protein encoding
                                                                                                                                                                        2438 GAAGGAACATCTAGTAATGATTCTAGAGATATGGGA 2473
                                                                                                                             603 ThrGlyGluTyrSerAsnProThrSerAspTyrGly 614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DNA from A. thaliana (Accession NO. AAD15491)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Disclosure; Fig 12; 123pp; English.
                                                                                                                                                                                                                                                                                                                   BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Haffani YZ;
                                                                                                                                                                                                                                                                                                                       ACF36551 standard; DNA; 2520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     28-FEB-2003; 2003WO-CA000274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28-FEB-2002; 2002CA-02373903
28-FEB-2002; 2002US-00086464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3.58e-36
1504.00
53.47%
43.90%
43.56%
                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Arabidopsis thaliana.
```

20

99 151 318 28

159

40

210

9

270

75

---ProSerThrProGlySerProProLeu

```
271 GTAGCTAATCCGTCACCCAGAGTCCTTCTTCTCCACCTGCACCTGAAGGCTCA 330
                                                                                                                                                                                                                                                                                                                                                                       SerProArgProProSerSerProSerProSerProSerProSerSerAspGlyLeuSerThr 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ProProProProProProProPheMetSerSerGlyGlySerAspTyrSerAsp 243
                                                                                                                                                                                                                                                                                                   ------ProSerProProAlaPro----Thr 84
                                                                                                                                                             GluGluAspAla-----TyrTyrValProProProProProGlyProLysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TICAGAACGATCATAGTCTAATGGTTTCTGCTAGCTCCATATGGCAAAAGGATTAGATT-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ::::::
B70 TATAAGGTAAAGGAGATGTTGCATAGTGTAGTAATGGTGGTTATTACAAGGGAACACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAAGATCATGTGGTG---AATATGGCTGGTCAAGGAGGTGGGAATTGGGGTCCACAGCAA
                                                                                                           -----ATATCTGCTCCTCCCAGATATCTCCGCTTCTTTTCACCGCC
                                                                                                                                                                                                                                                                                                                                                        ThrProGlySerProProAla -- - ProValThrPro -- -- -- - ProThrArgAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                 391 ACTÓCTICOTTOCTOCTOCTATOATGACCGAAACAGAACCAATGGCGGAAACAACAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            rcaccircaccicercesicearaaeccricicacaaraeresigasearicagacricatea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ------GlyValValGlyIleAlaIleGlyGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   148 AlaLeuLeuValIleValThrLeuIleCysLeuLeuCysLysLysLysArgArgArgAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SerAspHisValValThrSerLeuProProProProLysAlaProSerProProArgGln
                                                                                          MetSerSerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThr
                                                                                                                                              21 ThrThrThrProProProAlaSerAlaProProProThrThrProSerSerProPro
                                                                                                                                                                                                41 ProSerThrIleProThrSerProProProSerSerArgSerThrProSerAlaProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ------SerValProGlyProSerAsnProSerArg------GluGlyGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCTCCTCAGGTCAACCACATGCACTACTACAATAACAATCCTTATGGAGGAGCACCCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCTAATTACAGTTTAGTATAACTGGAATTTTAATTTGTAGCCTAATGGTGTTTGATTAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TrpArgGlnGlnAsnAlaThr-----ProPro
Conservative:
Mismatches:
Indels:
Gaps:
                                                                 (1-2820)
                                                                                                                                                                                                                                                    ProSerProProThr-----
                                                                 x AAF77097
                                                                                                                                                                                                                                                                                                                                                                                                            100 ProProPro-----
 50.00%
39.38%
42.85%
                                                                  (1-647)
  Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gly----
                                                                                                                                                                                                                         160 TCATCA
                                                                  US-10-086-464-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                195
                                                                                                                                                                                                                                                                                                                                                                                  331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     224
                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                      16
                                                                                                                                                                                                                                                                                                                                                        82
                                                                                                                                                                                                                                                                                                                                                                                                                                                              103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     811
                            Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                               유
                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                            ò
                                                                                                                 유
                                                                                                                                           8
                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                  2257
                                                                                                                      2317
                                                                                                                                                                        2377
                2197
                                                                                            565
                                                                                                                                                                                                                602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The present invention relates to proline-rich extensin-like receptor kinase (PERK). The PERK nucleic acids and polypeptides are useful for increasing the resistance of plants to wounding and pathogens. These are also useful for producing transgenic plants with increased wounding and pathogen resistance compared with a wild type plant, as well as in assays for identifying and developing compounds to inhibit and/or enhance polypeptide function directly
                                                                                                                                              SerAsnValTyrSerSerTyrGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGlu 585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               New proline-rich, extensin-like receptor kinase nucleic acids and polypeptides useful for increasing plant wounding or pathogen resistance, or for producing transgenic plants with increased wounding or pathogen
                                                                                                                                                                                                                                                                                                                                                                                                                                      dв.
 ArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGln
                                                                                                                AGAGCGTTAGAAGGAGAAGTGTCCTTAGATGCTTTAAACGAAGGTGTGAAGCCAGGACAC
                                          ----GlnIleVal
                                                                   2198 TAACTAAAAGTCTATTTTTGTCAGAGAATAACAAACGAAATGTTGTGGTTTTCAGATAGTA
                                                                                                                                                                        AGTAACGTTTTACGGGTCATTGGGAGCAAGCTCGGATTATAGTCAGACATCTTACAATGCA
                                                                                                                                                                                                  AspMetLysLysPheArgLysMetAlaLeuGlyThrGlnGluTyr------AsnAla
                                                                                                                                                                                                                                                                                                                                                                                                                                    Proline-rich extensin-like receptor kinase; PERK; resistance; plant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2820
                                                                                                                                                                                                                                                                    2438 GAAGGAACATCTAGTAATGATTCTAGAGATATGGGA 2473
                                                                                                                                                                                                                                                    614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ij.
                                                                                                                                                                                                                                                  603 ThrGlyGluTyrSerAsnProThrSerAspTyrGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 2820 BP; 819 A; 629 C; 577 G; 795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
                                                                                                                                                                                                                                                                                                                                 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Example; Fig 13; 91pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99US-0149466P.
99US-0159122P.
                                                                                                                                                                                                                                                                                                                                AAF77097 standard; DNA; 2820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2000WO-CA000966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2e-35
1479.50
                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Arabidopsis thaliana.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2001-244305/25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Silva N;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GORING D.
                                                                                                                                                                                                                                                                                                                                                                                                            Arabidopsis gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SILVA N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WO200114563-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19-AUG-1999;
13-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                  17-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       resistance
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Goring D,
                                                                                                                      2258
                                                                                                                                                                        2318
                                                                                                                                                                                                                          2378
                                          543
                                                                                             546
                                                                                                                                               999
                                                                                                                                                                                                  586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (GORI/) (SILV/)
                                                                                                                                                                                                                                                                                                      a
                                                                                                                 g
                                                                                                                                                                    g
                                                                                                                                                                                                                      qq
                                                                                                                                                                                                                                                  ò
                                        8
                                                                                            ઠ
                                                                                                                                           ò
                                                                                                                                                                                                ò
```

102 450

66

116 510 147 630 167 184 750 185 810 194 869

----GlyProTyrGlyGlyGlnGlnGlnGln

203

a ઠે 원 ठ a 8 요 8 g 8 음 장

```
The invention relates to producing a transgenic plant having increased plant height, number of branches, number of seed pods and/or seed production compared to a non-transgenic plant, and/or quicker flowering or later senescence compared to a non-transgenic plant. The method involves transforming a plant with a vector including a Proline-rich Extensin-like Receptor Kinase (PERK) nucleic acid molecule or a nucleic acid molecule having PERK activity. The method, as well as the PERK nucleic acid molecule and polypeptide, are useful in increasing plant resistance to wounding and pathogens and in increasing plant growth and seed production. The nucleic acid molecule and polypeptide may also be used in producing transgenic plants or transgenic host cells. The present sequence represents a PERKI polypeptide related protein encoding genomic DNA from A. thaliana (Accession NO. CAA18823)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCG------CCGTCTAATGAGTCATCGCCGCCAACACCCACTTCTTCACCACCACCACA 159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        271 GTAGCTAATCCGTCACCGCAGACTCCAGAGAATCCTTCTCCACCTGCACCTGAAGGCTCA 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ------ProGln-----Thr 84
                                                                                                                                   ucing a transgenic plant having an increased plant resistance, plant or seed production comprises transforming a plant with a nucleic molecule having a Proline-rich Extensin-like Receptor Kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MetSerSerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ThrThrThrProProProAlaSerAlaProProProThrThrProSerSerProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ProSerThr11eProThrSerProProProSerSerArgSerThrProSerAlaProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 rcarca-----ararcigerciceseagararcicesecrerrrrreaces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ProSerThrProGlySerProProLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ThrProGlySerProProAla --- ProValThrPro----- - ProThrArgAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               391 ACTICITICITCTCCTGGTGCCAATGATGACGAAACAGAACCAATGGCGGAAACAACAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----SerValProGlyProProSerAsnProSerArg-----GluGlyGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGAGACGGCTCCACACCATCACCACCACCGTCGGGAACAGAACTTCCGGTGACGGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                            BP; 819 A; 630 C; 576 G; 795 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2820
366
99
152
318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (1-2820)
                                                                                                                                                                                                                 Disclosure, Fig 13; 123pp; English.
                                                            Haffani YZ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               x ACF36552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ProSerProProThr----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3.42e-35
1471.50
49.89%
39.27%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ProProPro-----
                                                            Silva N,
                                                                                          WPI; 2003-712727/67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-086-464-2 (1-647)
               SILVA N.
HAFFANI Y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Percent Similarity:
Best Local Similarity:
   GORING D.
                                                                                                          P-PSDB; ABR82941
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 2820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alignment Scores:
                                                                                                                                     Producing growth or acid molecu
                                                            Goring D,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ч
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  091
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             103
(GORI/)
(SILV/)
(HAFF/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ..
No.:
   ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
```

```
1085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1386 TTCATCTAACAGAATGTTTTCTTGTATTAACAAAACCTTTAAGTATGGTTTCTCTTTAAT 1445
                                                                                                                                                                                                                                                                                                                                                                                                                                                  283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   374
                                                  147
                                                                                                                                                                                 750
                                                                                                                                                                                                            185
                                                                                                                                                                                                                                                                                                                                            929
                                                                                                                                                                                                                                                                                                                                                                      223
                                                                                                                                                                                                                                                                                                                                                                                        930 CAAGATCATGTGGTG---AATATGGCTGGTCAAGGAGGTGGGAATTGGGGTCCACAGCAA 986
                                                                                                                                                                                                                                                                                                                                                                                                                         243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            263
                                                                                                                                                                                                                                                                                         TTCAGAACGATCATAGTCTAATGGTTTCTGCTAGCTCCATATGGCAAAAGGATTAGATT- 869
                                                                                                                                                                                                                                                                                                                   203
                                                                                                                                                                                                                                                               ThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ||||||||:::|||||||::
|ACATACGATGAACTGTCCATTGCAACAGAAGGTTTCGCTCAGTCAAATTTGCTAGGACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGAGGATTTGGGTATGTTCATAAAGGAGTTCTGCCTAGTGGCAAAGAAGTTGCAGTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SerArgValHisHisArgHisLeuValSerLeuValGlyTyrCyglleAlaGlyAlaLys
SerProArgProProSerSerProSerProSerProSerSerAspGlyLeuSerThr
                                                               TCGGGTAATCATCCACAAGCCAACATTGGATTGATTGTTGGAGTCCTTGTAGGAGCAGGG
                                                                                                       AlaLeuLeuValIleValThrLeuIleCysLeuLeuCysLysLysLysArgArgAsp
                                                                                                                   GluGluAspAla-----TyrTyrValProProProProProGlyProLysAla
                                                                                                                                                                                 TCTCCTCAGGTCAACCACGACTACTACAATAACAATCCTTATGGAGGAGCACCCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLysGluValAlaValLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ArgLeuLeuValTyrGluPheValProAsnAsnAsnAsnLeuGluLeuHisLeuHis-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ------GlyGluGlyArgProThrMetGluTrpSerThrArgLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -GlyvalvalvalGlyIleAlaIleGlyGlyVal
                                                                                                                                                                                                                                     GGTAATTACAGTTTAGTATAACTGGAATTTAATTTGTAGCCTAATGGTGTTTGATTAGGT
                                                                                                                                                                                                                                                                                                                     -ProPro
                                                                                                                                                                                                                                                                                                                                              TATAAGCTAAAGGAGATGTTGCATAGTGTAGGTAATGGTGGTTATTACAAGGGAACACCT
                                                                                                                                                                                                                                                                                                                                                                        SerAspHisValValThrSerLeuProProProProLysAlaProSerProProArgGln
                                                                                                                                                                                                                                                                                                                                                                                                                           ProProProProProProPheMetSerSerSerGlyGlySerAspTyrSerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ArgProValLeuProProSerProGlyLeuValLeuGlyPheSerLysSerThrPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        uLyslleAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCys-----
                                                                                                                                                                                                                                                                                                                     TrpArgGlnGlnAsnAlaThr----
                                                                                                                                                                                                              Gly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1086
                                                                              571
                                                                                                                                 631
                                                                                                                                                           168
                                                                                                                                                                                                              185
                                                                                                                                                                                                                                        751
                                                                                                                                                                                                                                                                 186
                                                                                                                                                                                                                                                                                         811
                                                                                                                                                                                                                                                                                                                     195
                                                                                                                                                                                                                                                                                                                                               870
                                                                                                                                                                                                                                                                                                                                                                                                                            224
                                                                                                                                                                                                                                                                                                                                                                                                                                                     987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                            요
                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
```

8

g

8 8 8 8

g

ઠે

2666

8 6 8 6

8 8 8 8

6 B 6

8

8 8

8 6 8 6

8 6

⋧

```
-----GAAA 2739
                                              630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ll as in assays
enhance
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            New proline-rich, extensin-like receptor kinase nucleic acids and polypeptides useful for increasing plant wounding or pathogen resistance, or for producing transgenic plants with increased wounding or pathogen resistance.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The present invention relates to proline-rich extensin-like receptor kinase (PERK). The PERK nucleic acids and polypeptides are useful for increasing the resistance of plants to wounding and pathogens. These are also useful for producing transgenic plants with increased wounding and pathogen resistance compared with a wild type plant, as well as in assays for identifying and developing compounds to inhibit and/or enhance polypeptide function directly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        28
                                                                                                                                                                                                                                                                                                                                    <del>д</del>в.
                                              hrSerAspTyrGlyLeuTyrProSerGlySerSerSerGluGlyGlnThrArgGluM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SerSerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Thr------ThrProProAlaSer------ThrProProAlaSer----------
                                                                                                                                                                                                                                                                                                                                    Proline-rich extensin-like receptor kinase; PERK; resistance; plant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2880
325
92
160
376
26
                                                                            caadraagrardecrraaacccrrcrgcrrcaagraa-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                          2771
                                                                                                           etGluMetGlyLyslleLysArgThrGlyGln 640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  569 G; 804
                                                                                                                             || |- || || || TGAATAGAAACGCAATCCTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (1-2880)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BP; 814 A; 693 C;
                                                                                                                                                                                                         ВР
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Example, Fig 11, 91pp, English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          x AAF77095
                                                                                                                                                                                                         2880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99US-0149466P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                18-AUG-2000; 2000WO-CA000966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1.5e-27
1209.50
43.85%
34.17%
35.03%
                                                                                                                                                                                                                                                                        entry)
                                                                                                                                                                                                           DNA;
                                                                                                                                                                                                                                                                                                                                                                     Arabidopsis thaliana
                                                                                                                                                                                                                                                                      (first
                                                                                                                                                                                                                                                                                                      Ŧ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 2001-244305/25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Silva N;
                                                                                                                                                                                                         standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-086-464-2 (1-647)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                    Arabidopsis gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GORING D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SILVA N.
                                                                                                                                                                                                                                                                                                                                                                                                  WO200114563-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 2880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19-AUG-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores:
                                                                                                                                                                                                                                                                      17-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                  01-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ď,
                                                                                                                                            2740
                                              610
                                                                             2692
                                                                                                             630
                                                                                                                                                                                                        AAF77095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        22
                                                                                                                                                                                                                                       AAF77095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (GORI/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (SILV)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Goring
                                                                                                                                                                                                           셤
                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                            8
                                                                                                    े
                                                                                 1626 ATATGTTACATCAATTATAGGTCACCCTCGCATTATCCACAGAGATATCCAAA 1685
                                                                                                                                                                                                                                                                        1985 GATACTTAGCTCCAGAGTATGCATCAAGCGGAAAGTTATCCGACAAATCTGATGTTTTCT 2044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CACGICTAGAGCIAAACIACAGICAICAAGAGAIGGIICAAAIGGCIICTIGIGCAG 2341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CATICITICATITICAGITITICAGAC-CAAGGIATGIGIGIATAIATAICGACTCTIGIAC 1744
                                                                                                                                                                                                                        1745 TACTTTTACTTTCATTGTCTCTCATTTTTTGTTTCCAATCTGTGTCGATGTGTGTATCAGT 1804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAGCAATCAGACATTCAGCAAGAAGACGCCTAAGATGAGCCAGGT-TCAAAAACTCATA 2400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2401 CCACTTGTTGGTTCTATTGTTATATTTTTACTCACAATTAATCTTGATGATAAATGTGAC 2460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2461 ATACTAATGAATCTTGAAACATGTGTATGGTAAATGAAAGATTGTACGAGCACTAGAAG 2520
                                                                                                                                                                                                                                                                                                                                                                                                                 1925 CTCAACTCATCCACCTTATTTAGTTTCTTTCACTTGTTTTAACATTTTCTTGGATTCA 1984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGGCAAGGCCTTTGTGTTTGAAAGCAGCTCAAGATGGAGATTACAACCAATTGGCTGATC 2281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTTTAATCCCAAAACACTTTCCAAAGCAAAAACAGAAACAAATCTTACTATTGTTGC 2221
                                                                                                                                                                                                                                                      ---LysValAlaAspPheGlyLeuAlaLysIleAlaSerAspTh 427
                                                                                                                                                                                                                                                                                                                                                                                                                                                 -- TyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPheS 460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              erPheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnV 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       --AlaargProteuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspA 509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        509 laLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAlaAlaA 529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              550 lyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsnValTyrS 570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          590 heArgLysMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnProT 610
                               1566 CTTTATCTCACATATTTGCATCAGTTTCTATCTCGCTCTCTACAATATTTGAAAGATTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ------ValArgAlaLeuGluG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             erSerTyrGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMetLysLysP
                                                              ----- AsnProLysllelleHisArgAspIleLysAlaSerAs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   laCysValArgHisSerAlaArgArgArgProArgMetSerGlnIle-----
                                                                                                                            nileleulleAspPheLysPheGluAla----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             480 alTyrValAspAspSerLeuValAspTrp
                                                                                                                                                           1686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2521
                                                              392
                                                                                                                            404
                                                                                                                                                                                         413
                                                                                                                                                                                                                                                                                                                                                                                    440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             570
                                                                                                                                                                                                                                                        414
                                                                                                                                                                                                                                                                                                                                                                                                                                                  441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 545
 391
```

1148 ATACTCCGAAGTGGCCAGACTCATTTCAGTTACGAAGAGCT 275 PheSerGlualaAsnLeuLeuGlyGlnGlyGlyPheGlyTy 1208 TTTGCTCGCAAAAACTTCTTGGAAGAGGCGGATTTGGATG 295 ProSerGlyLysGluValAlaValLysGlnLeuLysValGl 1268 CAGGATGTTGCGGTTAAGCGGTTTAGATG 315 GluPheGlnAlaGluValGluIleIleSerArgValHisHi 1328 GAATTCAAAGCTTGAGGTTAAGCGCGTTTAAGCTGG 315 ValGlyTyCYsIleAlaGlyAlaLysArgLeuLeuValTy 1388 GTTGGTTACTGCATTCAGACCAGCATAGCTTATCTACAG 138 GTTGGTTACTGCATTTCAGACCAGCATAGCTTATCTACAT 1388 GTTGGTTACTGCATTTCAGACCAGCATAGCTTATCTACAT 1448 ACCTTGGAGCATTGCATTTCCATGGTGATGCTTATCTACAT	1508 TTTTTTAGCTTTACGTGTTAGACTGACTCGCTTTACGCTT 367 rWetGluTrpSerThrArgLeuLysIlealaLeuGlySerA 1568 TTAGAGTGTCTAAGAGAGTCCGGATCGCTATAGGATCAG 387 uHisGluAspCySAsn	1687 TTCATAGTTTAAACAGAAGCCAAAAATCATATCTTTTT 1687 TTCATAGTTTAAACAGAAGCCAAAAATCATATCTTTTTT 194 BILETIEHIGARGAGTATAAAGTCAGCAAAATTCTTCTAG 414 B	424 aSerAspThrAsnThrHisValSerThrArgValMetGlyT 1926 TGATACAACACAAACTCATGTTTCAACTCGGGTTATGGAAA 440	440
	102 ProSerValProGlyProProSerAsnProSerArgGluGlyGlySerPro 118	130SerSerAspGlyLeuSerThrGly		195 TrpArgGlnGlnAsnAlaThrProProSerAspHisValValThrSerLeuProProPro 214 :::
8 8 8 8 8 8 8 8 8 8	8 8 8 8 8	8 8 8 8 8 8	9 6 9 9	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8

OPheGlyLeuAlaLyBIleAl 424 ThrPhe-Gly------ 440 euGluLeuIleThrGlyArgA 473 ||||||||||| TAGAGCTTGTAACTGGACGGA 2225 BUVAlABPTTP------ 489 IyrValHisLysGlyValLeu 294 31ySerGlyGlnGlyGluArg 314 HisArgHisLeuValSerLeu 334 YrGluPheValProAsnAsn 354 TTAGGAAAGGGTTTGCCAGT 1567 TGTGTGCTTTGGTTATGCAC 1686 TATTTTACAGGTCATCCGAA 1746 eAspPheLysPheGluAlaLy 414 ATGACTGTAAAGTTTTAGTTA 1865 CAATGCCTGATGAAAAGTTTG 2045 ATCTTTATTGATCGTATGGCT 2105 VrAlaAlaSerGlyLysLeuT 453 ATTTTCGTTATAGATAAGACT 1507 TTGCTGAGATAACACAAGGC 1207 392 394 your 440 ------GlyArgProTh 367 ----- 414

```
2645
                                                                                                                                                                                                                                                                                                                                             2678
                                                                                                                                                                                                                                                                                                                                                                                               2738
                                                                                                                                                                                                                                                                                                                                                                                                                                                  2780
                                                                                                                     2406 GAACTGATTGATACACGGCTTGAAAAGCGTTATGTGGAGCATGAAGTCTTCAGAATGATC 2465
                                                                                                                                                                                2466 GAGACAGCCGCTGCATGTTAGACATTCTGGTCCAAAACGCCCACGCATGGTTCAGGTA 2525
                                                                                                                                                                                                                                     2526 ATTCTGACTAACCAAAAGTCCAAAAGCTCCCATATATAGTAACAAGTGATTTCTCACATCT 2585
                                                                                                                                                        543
                                                                                                                                                                                                            543
                                                                                                                                                                                                                                                                                                                                                                                                                         614
                                                                                                      524
                                                                                                                                                                                                                                                               554
                                                                                                                                                                                                                                                                                                                   574
                                                                                                                                                                                                                                                                                                                                                                     594
                                                                                                                                                                                                                                                                                                                                                                                    2679 AGCACAACTITATGACTCAGGGCAATACAATGAAGACATTATGAAATTCAGGAAAATGGCG
                        2286 AACTITCAAACAITCITCAAIAAIAGIAAGAITGGCCCIAGIAIACIITAIAIAGIACIIA
                                                   ------AlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGlu
                                                                           2346 TAPATGAACTCACAGGCGCGCCCCCTGCTTCTCAAAGCCATTGAGACCGGAGATTTAAGC
                                                                                                     505 GlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetVal
                                                                                                                                                       525 AlaCysAlaAlaCysValArgHisSerAlaArgArgArgProArgMetSerGln---
                                                                                                                                                                                                                                                               2586 GAAAACTTATCTACTCTTCGAAATAAGGTTGTGAGGCATTGGACTGCGACGGAGACTCG
                                                                                                                                                                                                                                                                                                                 SerAspLeuAsnGluGlyMetArgProGlyGlnSerAsnValTyrSerSerTyrGlyGly
                                                                                                                                                                                                                                                                                                                                  |||:::::: |||::::::
2646 GGAGATATTAGCAACGGAATCAAAATTGGGCAA--------
                                                                                                                                                                                                                                                                                                                                                                     SerThrAspTyrAspSerSerGlnTyrAsnGluAspMetLysLysPheArgLysMetAla
                                                                                                                                                                                                                                                                                                                                                                                                                       595 LeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnProThrSerAspTyrGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ------GGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PERK1; transgenic; plant; proline-rich extensin-like receptor kinase; wound; pathogen resistance; plant growth; seed production; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Arabidopsis PERK1 receptor related protein encoding DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                          2781 AACTACTCTGCCAAAAGCTCTTCAGAT 2807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LeuTyrProSerGlySerSerSerGlu 623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Haffani YZ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACF36550 standard; DNA; 2880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28-FEB-2002; 2002CA-02373903.
28-FEB-2002; 2002US-00086464.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28-FEB-2003; 2003WO-CA000274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SILVA N.
HAFFANI Y Z.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Goring D, Silva N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 2003-712727/67.
P-PSDB; ABR82939.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (GORI/) GORING D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO2003072763-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18-DEC-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        04-SEP-2003.
                                                                                                                                                                                                                                                                                                                 555
489
                                                  490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          615
                                                                                                                                                                                                                                                                                                                                                                     575
                                                                                                                                                                                                           543
                                                                                                                                                                                                                                                              544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACF36550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (SILV/)
(HAFF/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                          용
                                                                                                                                                                        g
                                                                                                                                                                                                          ò
                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                ሯ
                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                 ò
                                                                                                  8
                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                       Š
```

The invention relates to producing a transgenic plant having increased plant height, number of branches, number of seed pods and/or seed production compared to a non-transgenic plant, and/or guicker flowering or later senescence compared to a non-transgenic plant. The method involves transforming a plant with a vector including a Proline-rich Extensin-like Receptor Kinase (PERK) nucleic acid molecule or a nucleic acid molecule having PERK activity. The method, as well as the PERK nucleic acid molecule and polypeptide, are useful in increasing plant resistance to wounding and pathogens and in increasing plant growth and seed production. The nucleic acid molecule and polypeptide may also be used in producing transgenic plants or transgenic host cells. The present sequence represents a PERKI polypeptide related protein encoding genomic DNA from A. thaliana (Accession NO. AAC98010) plant resistance, plant t with a nucleic Producing a transgenic plant having an increased plant resistance, growth or seed production comprises transforming a plant with a macid molecule having a Proline-rich Extensin-like Receptor Kinase Disclosure; Fig 11; 123pp; English activity

Seguence 2880 BP; 814 A; 693 C; 569 G; 804 T; 0 U; 0 Other;

of sednesice	ance zeeu br;	014 A; 095 C;	20 6; 80% 1; 0	o o' o ocuer;	
Alignment Pred. No.: Score: Percent Si Best Local Query Matc	Alignment Scores: Pred. No.: Score: Percent Similarity: Best Local Similarity: Query Match:	1.5e-27 42.09.50 43.85% 34.17% 35.03%	Length: Matches: Conservative: Mismatches: Indels: Gaps:	2880 325 32 160 376 26	
US-10-086-464	464-2 (1-647)	x ACF36550 (1	-2880)		
6	2 SerSerAla	ProSerProGlyThr	rGlySerProProSerE	SerSerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThrThr 21	
qq	98 AACTCAGCT	criccaccigirgai	rccrcrccrccragr	ACTCAGCTCTTCCACCTGTTGATTCCTCTCCTCCTAGTCCACCAGCTGATTCATCA 157	7
δ	22 Thr		-ThrProProProAlas	Thr	_
qa	158 ACACCGCC	GTGTCAGAACCATCC	CACTCCTCCTCCAGATT	CACAGCTTCCTCTTTACCT 217	7
ò	29		-AlabroProProThr	AlaProProTroThrThrProSerSerProPro 40	_
Db	218 TCGATTCTI	CCTCCGCTAACAGAT	rcrccaccrccaccr	rccgarrcrccacccgrr 277	7
Š	41 ProSerThr	IleProThrSerPro	OProProSerSerArgS	41 ProSerThr1leProThrSerProProPeroSerArgSerThrProSerAlaPro 59	
Db	278 GATTCAACC	:ctrcrcgcc	SCCACCGACGTCAAACG	SAATCTCCTCCAGAA 334	4
ζŏ	09	ProProSerPro	ProThrProSerThr	ProGlySerProProPro 74	
qq	335 GATTCCGAA	ACACCACCTGCTCCA	 accaaatgaatccaatg	335 GATTCCGAAACACCTCCTCCACCAAATGAATGAATGAATG	4
λ̈́	75	LeuProGlnPro	SerProProAla	75	
qq	395 CAAGATCTI	CAATCGCCTCCTCC	Arcgreeceree	ATGTAGGACCCACAAACCCG 454	4
à	87 GlySerPro	ProAlaPro	oValThrProProThrA	GlySerProProAlaProValThrProProThrArgAsnProPro 101	근
. q a	455 GAATCACCA	CCGTTACAATCTCCT	rccagctccaccagcat	CAGATCCTACAAATTCACCG 514	4
δλ	102 ProSerVal	ProGlyProProSer	rAsnProS	ProSerValProGlyProProSerAsnProSerArgGluGlyGlySerPro 118	80
Db	515 CCAGCTTCA	CCATTAGACCCTACC	CAATCCTCCCCCAATAC	PACCATCAGGACCAGCCACT 574	4
Š	119 ArgProPro	SerSerProSer	rProproSerPro	ArgProProSerProSerProProSerPro	6
QQ	575 TCTCCTCCG	GCTAATCCCAACGCT	rcccccacccatrc	CCACAGTACCACCCAAAACT 634	4
ò	129			129	6

635 CCTTCTAGTGGACCTGTGGTGTCTCCATCTCTCACATCCCCTAGTAAAGGAACTCCTACT 694

셤

2166 CTGATAGATCCATTCTCATTCTGGGGGT 473 TGPTOVALABALASANAUTTYVALLA: 2226 AACAGTTGACCAGACTCAGCCTCTAGGAGA 489ALAATGPTOLEULEUA 490	8 5 8 5 8 5 8 5 8 5 8 5 8 5 8 5 8 5 8 5	255 ValleuGlypheSerLyserAmpryreserAmpryreserAmpryreserAmpryreserAmpryreserAmpryreserAmpryreserAmpryreserAmpryreserAmpryreserAmpryreserAmpryreserAmpryreserAmpryreserAmpryreserAmpryreserTile	8 4 8 6 8 6 8 6 8 6 8 6 8 6 8 6 8 6 8 6
	6 6 6 6 6	TTGCTCGCAAAAACATTCTTGGAGAAGGCGGATTTGGATGTGTCTATAAAGGTACATTG ProSerGlyLygGluValAlaValLygGlnLeuLygValGlySerGlyGlnGlyGluArg CAGGATGGTAAAGCTTAAAAGCTGATAAAGCTGATAAAGGTACCGT	6 6 6 6 6 6
	& 8 & 8 ·	GGTGGTTATCCTCATCAA	8 6 8 6 8
440	8 8 8 8 8	TACGGTCAAGATCAGGTAAAGGATACTCCTCGGTCCTAATGGTGTGTGT	3 6 8 6 8 6 1
414 8 1807 -GGCAATAATGAAATCCTCCTTTTCGTTAAA 415	8 8 8 8 8	CyslyslyslyshyshrgargargaspGludluaspAlaTyrTyrValPro	6 6 6 6
	6 6 6 6	130Valval 139	8 8 8

--valAlaAspPheGlyLeuAlaLysIleAl 424 7alValLeuLeuGluLeuIleThrGlyArgA 473 nGluaspWetLysLysPhearglysMetala 594 ATCCTTGTTTTATTTTACAGGTCATCCGAA 1746 nnileLeuileAspPheLysPheGluAlaLy 414 ATCTATCTTATGACTGTAAAGTTTTAGTTA 1865 GGValMetGlyThrPhe-Gly------ 440 TTATTGATCCAATGCCTGATGAAAGTTTG 2045 CAAACCTGAATCTTTATTGATCGTATGGCT 2105 489
:::::|||||||||::|||
saagagagtttgaatgaatcc 2285 BATTGGCCCTAGTATACTTATATAGTACTTA 2345 |||| TATGTGGAGCATGAAGTCTTCAGAATGATC 2465 зсад----- 2678 ATATATAGTAACAAGTGATTTCTCACATCT 2585 AlaArgArgProArgMetSerGln--- 543 414 AsnArgalaSerGluGlnGlyAspPheGlu 504 TyrAspArgGluGluMetAlaArgMetVal 524 ValArgAlaLeuGluGlyAsnValSerLeu 554 GinSerAsnValTyrSerSerTyrGlyGly 574 yGluTyrSerAsnProThrSerAspTyrGly 614

66 13

```
CTGGAATCACCTCCTCCTCCTTCGAATCTCCCATCTCCACGTCTCACGTCTCA 336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IleCysLeuLeuCysLysLysLysArgArgAspGluGluAsp-AlaTyrTyrValPr 175
                                                                                                                                                                .00 TCGTACCTGACACGTCATCACCTCCAGCTCCTCTTGTCTCCTCTTCCCCCACCATTG 159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTCTTTGTCTTCTACAGAGCTACCAGAAATAGAAATAACAACAGCAGCTCTGCTCATCAT 981
                                                                                                                                                                                                                                                                                                                                                                                                                                              217 ccgccrcrrcccgrrgaarccccacccrcrccrcraragaarcaccaccccrcra 276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTCCTATTGGGCCTGTTATAGAGCCCAAGACGAGTCCAGCCGAATCAATATCTCCGGGA 801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ThrProGlySerProProDeuPro------GlnProSerProProAlaPro 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |||||||:::|||:::|||
TCTTCCTCGCCGGCTCCGGCAACT---TCCCCGGCTGCCATGTCATTACCTCCGGCAGAT
                                                                                                                            -------SerProProSerAsnSerThrThrThrThrProProProAla
                                                                                                                                                                                                                                                                                                                                                                                      -------ProProSerThrlleProThrSerProProPerSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                53 ArgSerThrProSerAlaProPro-----ProSerProProThrPro-----Ser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    337 GCTCCTTCCGGTTCACCCTTACCCTTCCCGCCAAACCTTCTCCGCCG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ThrThrProGlySerProProAlaProValThrProPro-----ThrArgAsnProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----ServalProGlyProPro
                                                                                                                                                                                                                                                                                                                    Agenenecreceses - - - racentreaceacesecretereses and a secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the secrete contract of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    rerecercecececeragiese---ecraageerregringerececarcaarier
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ccaccectcrcaacgacccarrrccrcrcrcacrcccccccccraagaagrcccr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              802 ACGCCACAGCCACTGGTTCCGAAGAGTCTACCTGTAACGACGTCGTATCACCGATCATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ThrGlyValValValGlyIleAlaIleGlyGlyValAlaLeuLeuValIleValThrLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCAGCAGTAACTCTTTCCTTTCGGCCAGCGGGCCAATTACCGGATGGGACCGTAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SerAsnProSerArgGluGlyGlySerProArgPro-
                                                                                                                                                                                                                                                         SerAlaProProProThrThrProSerSerProPro
SerSerAlaProSerProGlyThrGlySerProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   oProProProPro-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---ProSerSerProSerPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pro------
                                                                 43
                                                                                                                                14
                                                                                                                                                                                                                                                         28
                                                                                                                                                                                                                                                                                                                                                                                      40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   135
                                             셤
                                                                                                                            8 8
                                                                                                                                                                                                                                  ें
                                                                                                                                                                                                                                                                                                          용
                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                 요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       원
장
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                    2780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The invention relates to producing a transgenic plant having increased plant height, number of branches, number of seed pods and/or seed production compared to a non-transgenic plant, and/or quicker flowering or later senescence compared to a non-transgenic plant. The method involves transforming a plant with a vector including a Proline-rich Extensin-like Receptor Kinase (PERK) nucleic acid molecule or a nucleic acid molecule having PERK activity. The method, as well as the PERK nucleic acid molecule and polypeptide, are useful in increasing plant resistance to wounding and pathogens and in increasing plant growth and seed production. The nucleic acid molecule and polypeptide may also be used in producing transgenic plants or transgenic host cells. The present sequence represents a PERK1 polypeptide related protetin encoding genomic DNA from A. thaliana (Accession NO. CAA18590)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Producing a transgenic plant having an increased plant resistance, plant growth or seed production comprises transforming a plant with a nucleic acid molecule having a Proline-rich Extensin-like Receptor Kinase
   transgenic; plant; proline-rich extensin-like receptor kinase; pathogen resistance; plant growth; seed production; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 3060 BP; 797 A; 766 C; 592 G; 905 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Arabidopsis PERK1 receptor related protein encoding DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3060
342
72
185
456
Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                2781 AACTACTCTGCCAAAAGCTCTTCAGAT 2807
                                                                                               LeuTyrProSerGlySerSerSerGlu 623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Disclosure; Fig 14; 123pp; English
                                                                                                                                                                                                                                                                                       BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Haffani YZ
                                                                                                                                                                                                                                                                                       standard; DNA; 3060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         28-FEB-2002; 2002CA-02373903
28-FEB-2002; 2002US-00086464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 28-FEB-2003; 2003WO-CA000274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8.1e-27
1185.00
39.28%
32.45%
34.32%
                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (GORI/) GORING D.
(SILV/) SILVA N.
(HAFF/) HAFFANI Y Z.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Silva N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 2003-712727/67.
P-PSDB; ABR82942.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WO2003072763-A1
                                                                                                                                                                                                                                                                                                                                                                                                                    18-DEC-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ď,
                                                                                               615
                                                                                                                                                                                                                                                                                       ACF36553
                                                                                                                                                                                                                                                                                                                                                  ACP36553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            activity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PERK1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           wound;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Goring
                                                                                                                                                                                                                        RESULT 15
                                                                                                                                                                                                                                                      AACP36553

XX
AACP36553

XX
AACP3
XX
AACP3
XX
AACP3
XX
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
AACP3
                                                                                           ઠ
```

390

67

101 444 108 504 561

621 131 681 134 741 134 135

861

155

CAATCCAAAACTCCCTCAAAAGGTATAAACTTTGAGATCAATTTGTTTCAGACTGTCACT 1041

982

g

-----GlyProLysAlaGlyGlyProTyrGlyGlyGlnGlnGlnGlnTrpAr

.042 TAAAATGTAATGTAATTGTAAGTTATGATCTTTTTTGCTTGGATCAGTTCAACATCATC 1101

gGlnGlnAsnAlaThrProProSerAspHisValThrSerLeuProProProLy 216

196

ઠે

(1-3060)

JS-10-086-464-2 (1-647) x ACF36553

Percent Similarity: Best Local Similarity:

Query Match:

셤

8

2780 2840 2935 2975 2661 2241 2601 2482 ATGAAACTCCAGTATAACTGCAAGCTTGAAACTTCATTAGACTGTAAATTTTGATTATTC 2541 635 GITIAAAAATATTAAGTTTCAAGTTTCAAGTTTCAAGTTTCAAGTTTCAAGTTTCTTCTT 2181 528 |||| ::: ::|||| |GAATGACATC---ACACCACGGTATGGAACAAATAAGAGGAGATTC------2182 GTTGTATCGTAAATCCAGATCAAAAGATTTATTGATTACTAAAATGCCTTGTGCACCGTCT rGluLysSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThrGlyArgAr 2422 TACATGATGATGATGATACCATTAGGTTTTTCTTTTTCCCACTAGTTATTAGATGAAA 2542 CTCAGGCGAGGCCATTGCTTACGAAAGCAATCTCTGAAGAAAGTTTTGACTTTTCTTGTAG spAlaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAlaA ------ValArgAlaLeuGluGlyAsnValSerLeuS erAspleuAsnGluGlyMetArgProGlyGlnSerAsnValTyrSerSerTyrGlyGlyS erThraspTyraspSerSerGlnTyrasnGluaspMetLysLysPheargLysMetAlaL euTyrProSerGlySerSerGluGlyGlnThrThrArgGluMetGluMetGlyLysI 2721 GITTAAATACATGTATTCGTCCATATATCCGAAAGGAACAAGCCTAATCCATGAATACAT euGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnProThrSerAspTyrGlyL gProvalAspAlaAsnAsnValTyrValAspAspSerLeuvalAspTrp----------TyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuTh TA-------GGGCAAGTTTCACCACATTA 3058 lelysArgThrGlyGlnGlyTyrSerGlyProSerLeu 647

```
GenCore version 5.1.6
Copyright (c) 1993 - 2004 Compugen Ltd.
```

```
- nucleic search, using frame_plus_p2n model
OM protein
```

; Search time 3599 Seconds (without alignments) 5368.389 Million cell updates/sec May 12, 2004, 22:25:16 Run on:

3453 1 MSSAPSPGTGSPPSPPSNST.....REMEMGKIKRTGQGYSGPSL Xgapop 10.0 , Xgapext Ygapop 10.0 , Ygapext Fgapop 6.0 , Fgapext Delop 6.0 , Delext US-10-086-464-2 **BLOSUM62** Title: Perfect score: Scoring table: Sequence:

647

27513289 segs, 14931090276 residues

Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0 Maximum DB seq length: 200000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

Command line parameters:

MODEL=frame+_p2n.model -DEV=xlp -Q=/CGn2_1/USPTO_spool_p/USIO086464/runat_11052004_12181S_7853/app_query.fasta_1.839 -Q=/CGn2_1/USPTO_spool_p/USIO086464/runat_11052004_12181S_7853/app_query.fasta_1.839 -DB-EBST -QFWT=fastap -SUFFIX=p2n.rst -MINATCH=0.1 -LOOPCI=0 -LOOPEXT=0 -UNITS=bits -START=1 -END=1 -MATRIX=blosum62 -TRANS=human40.cdi -LIST=45 -UNITS=bits -START=1 -END=1 -MATRIX=NO -TRR MIN=0 -ALIGN=15 -MODE=LOCAL -OUFFWT=pto -NORM=ext -HEAPSIZE=500 -MINIEN=0 -MAXLEN=200000000 -USER=USI0086464 @CGN 1 1 4237 @runat_11052004_121815_7853 -NCPU=6 -ICPU=3 -NO WMAP -LARGEQUERY -NEG SCORES=0 -WAIT -DSPBLOCK=100 -LONGLOG -DEV_TIMEOUT=120 -WARN TIMEOUT=30 -THRRADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6 -FGAPEXT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELDERT=7

Database

em_estfun:*
em_estom:*
em_gss_hum:*
em_gss_inv:* em gss pln:* em_estba:*
em_estlum:*
em_estlum:*
em_estlum:*
em_estlo:*
em_estlo:*
em_estlo:*
em_estlo:*
em_estlo:*
em_estlo:*
em_estlo:* gb_est3:* gb_est4:* gb_est5:* gb_htc:* EST:*

em_gss_phg:* em_gss_vrl:* gb_gssl:* em_gss_pro:* em_gss_rod:* fun: * vrt: * # : mem #:8nm 15: 16: 19: 20:

29: gb_gss2:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

ij	12748108 17748108	35142 EL01N035	6437 EST6727	36655 EST67300	08099 EST58242	36122 EST67246	596561 EST49523	55196 OSJNEC08	441204 GA EAUU	39231 RF02.114	18780	8715 GA RADO	72174 SCCCAM	99573 WHE3309	99193 QGG21G	37156	25849	55135	58754	CX283399 EST746121	00000	1000	13846	36431	04121	98046	15663	34241	69890	96498	5337 SCCCLESO	18316 SCCCFL5	C674K95	3440	10617 Tabusu1	3683 0681012	99754 946178G	237152 SCMCFLS	582873 E012278-	6907 EM1 4 B1	19661	24 I UBUZ GA EGUU	51753 /
ID		43514	3643	43665	40809	12	9696	5519	14120	3923	470	1200	7217	9957	9919	3715	2584	5513	5875	CK283399	200	7838	2 4 6 6	3643	0412	9804	1566	3424	9890	49	9533	1831	. 90	24344	24061	84968	49975	15	58287	17690	19666	BQ41060	55175
DB	ic	1 7	14	14	12	14	15	14	17	4:	= =	1:	1 =	13	13	14	29	14	29	4.	4 .	4 5	10	2 6	13	14	14	13	13												14		ס
Length	1001	3 6	8	æ	S	œ	ഗ	m	σ, (72	Ωr	ט ל	0		7	н	S	0	S	769	4 L	n t	٠,	14		7	σ	3	4	σ,	ю.	4 (N 1	0	4 1	n.	9	σ,	N	σ.	2 12	- 1	
% Query Match	1.		; ;;	1.	ή.	ö	ö			٠. د	٠.			8	7.	7.	۲.	9	9	26.7	٠,	٠.				6		9	9	٠.	'n	٠ د	ċ	· 0	ທ່າ	S.	ď.	٠. س	'n	S.	د	٠.	
Score			108	0	90	90	90	90	40	103		3 5	10	98	ဖ	3	m	•	92	923.5	N C	N (20		91		90	0	90		95.	σ (8		σ,	σ.	σ	σ.	88		887	88	
Result No.		10	ım	4	ហ	9	7	ω .	ָס יָ	01	11.	7 -	14	15	16	17	c 18	19	20	c 21	7 6	520	4 C	2,5	1 (2)	78	29	30	31	c 35	33	m	0 32	m	37	38	39	40	41	42	4 .	44	45

ALIGNMENTS

BP184771 BNS rice panicle cDNA, germ cell generating stage Oryza sativa (japonica cultivar-group) cDNA, mRNA sequence. BP184771.1 GI:32948199 BP184771 EST. RESULT 1 BP184771 LOCUS DEFINITION ACCESSION VERSION KEYWORDS SOURCE ORGANISM

Oryza sativa (japonica cultivar-group) Oryza sativa (japonica cultivar-group) Bukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta, Spermatophyta, Magnoliophyta, Liliopsida, Poales, Poaceae; Ehrhartoideae, Oryzeae, Oryza.

```
EST 03-JUN-2003
                                                                                                               599
                                                                                                                                              715
                                                                                                                                                                             619
                                                                                                                                                                                                                                                                       835
                                                  579
                                                                                 658
                                                                                                                                                                                                          775
                                                                                                                                                                                                                                        639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Magnoliophyta, Liliopsida, Poales, Poaceae, PACCAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LeuValGlyTyrCyslleAlaGlyAlaLysArgLeuLeuValTyrGluPheValProAsn 353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1. .824
/organism="Zea mays"
/organism="Zea mays"
/mol_type="mRNA"
/cullivar="W22"
/db_xref="taxon:4577"
/tissue type="Endosperm of 7-23DAP"
/clone_lib="Endosperm_3"
/note="Vector: pBluescript SK-; Site_1: EcoRI; Site_2: XhoI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          and
                                                                                                               SerSerGlnTyrAsnGluAspMetLysLysPheArgLysMetAlaLeuGlyThrGlnGlu
                                                                                                                               600 TyrAsnAlaThrGlyGluTyrSerAsnProThrSerAspTyrGlyLeuTyrProSerGly
                                                                                                                                                                                                                                                          2 TIGGTIGGCTATTGCATTTCTGGAGGCACCTTGCTGCTGCTTGTCTATGAGTTTGTCCCCAAT
   620 SerSerSerGluGlyGlnThrThrArgGluMetGluMetGlyLysIleLysArgThrGly
                                                    GlyMetArgProGlyGlnSerAsnValTyrSerSerTyrGlySerThrAspTyrAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Spermatophyta; Magnoliophyta; Lillopsida; Poales; Poaceae; Isclade; Panitocideae; Andropogoneae; Zea.
1 (bases 1 to 824)
Lai,J., Dey,N., Kim,C.S., Becraft,P., Larkins,B., Linton,E.
                                                                                                                                                                                                                                                                                                                                                                                                  CD435142 824 bp mRNA linear EST
EL01N0355D03.b Endosperm_3 Zea mays cDNA, mRNA sequence.
CD435142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        824
206
27
41
3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     08854,
                                                                                                                                                                                                                                                                                                      836 TACAGTGGCTACAGCTCAGGÁTACAGCGGAGCCTCA 871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequencing of the maize endosperm ESTs
Unpublished (2002)
Contact: Lai, Jinsheng
Dr. Joachim Messing's lab
Waksman Institute, Rutgers University
190 Frelinghuyeen Rd., Piscataway, NJ 088
Tel: 732-445-3801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Email: jlai@waksman.rutgers.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (1-824)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Seq primer: T3.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                 CD435142.1 GI:31350785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  x CD435142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4.54e-26
1090.50
84.12%
74.37%
31.58%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-086-464-2 (1-647)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Messing, J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alignment Scores:
                                                                                                                  280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 334
                                                    260
                                                                                   602
                                                                                                                                                                                                                                                                         176
                                                                                                                                                                                                                                                                                                        640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                    RESULT 2
CD435142
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORIGIN
                                                                        g
                                                                                                                                           g
                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                ઠે
                                                                                                                                                                          ઢ
                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                      ò
                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                242 GGATATCTAGCACCAGAGTACGCATCTTCTGGCAAGCTCACTGAGAAATCAGATGTCTTC 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SerPheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsn 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              480 ValTyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGlu 499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       500 GlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGlu 519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           540 ArgMetSerGlnIleValArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGlu 559
                                                                                                                                                                                                                                                       1. .1084
|/oxganism="Oryza sativa (japonica cultivar-group)"
|/oxganism="Oryza sativa (japonica cultivar-group)"
|/mol_type="mRNA" |
|/tissue_type="panicle" |
|/tissue_type="panicle" |
|/dev_stage="germ cell generating stage" |
|/clone_lib="pNS rice panicle cDNA, germ cell generating stage"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SerAlaLysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       182 CTTGCTAAGTTCACCAGTGATAATAACACTCATGTTTCGACAAGAGTAATGGGCACTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyTyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LeuHisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTGCACGGAAAAGGCCGACCAACAATGGAGTGGCCCACAAGACTAAAAGATTGCTTTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LeualaLysIleAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IleLysAlaSerAsnIleLeuIleAspPheLysPheGluAlaLysValAlaAspPheGly
                                     yeast nuclear
                                                                                                                                                                                                 system
1 (bases 1 to 1084)

Moriguchi, K., Ito, Y., Yamazaki, Y. and Kurata, N.
Finding of various plant nuclear proteins using yeast nucl
transportation trap system - a proteomal approach
Unpublished (2003)

Contact: Kazuki Moriguchi
Plant Genetics
National Institute of Genetics
Yata 1111, Mishima, Shizuoka 411-8540, Japan
Tel: 81-55-981-6879
Email: kmoriguc@lab.nig.ac.jp
Email: kmoriguc@lab.nig.ac.jp
cDNA clone obtained from nuclear transportation trap system ocitivar-group) putative receptor protein kinase PERK1.

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                 1084
212
30
43
7
                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (1-1084)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-086-464-2 (1-647) x BP184771
                                                                                                                                                                                                                                                                                                                                                                                                                                 4.98e-26
1092.50
82.88%
72.60%
31.64%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                    No.:
    REFERENCE
AUTHORS
TITLE
                                                                    JOURNAL
                                                                                                                                                                                                                                           FEATURES
                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                                                                                                     ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score:
```

ð g ઠે g ઠે a ò qq ò

임

ò g ò g

Š g ò 엄

8 8

8 6 8 6

8 6 6 6

ठ हे ठ

g

ઠે

a

a

õ

ઠે

셤

ò 셤

```
/tissue type="Callus, roots, and young bulbs"
/clone lib="normalized cDNA library of onion"
/clone The="normalized cDNA library of onion"
/clone The="vector: pCMVSports.l-codb (Invitrogen); Site_1:
ECORV (5/); Site_2: Not1 (3/); Equal molar amounts of mRNA from callus, roots, and young bulbs were combined to synthesize the library. Normalization to enrich for low-copy transcripts was performed by proprietary techniques of Invitrogen."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ValalavaliysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGlu 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LeuAlaLysIleAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPhe 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          440 GlyTyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPhe 459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValGluileileSerArgValHisHisArgHisLeuValSerLeuValGlyTyrCysIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      340 AlaGlyAlaLysArgLeuLeuValTyrGluPheValProAsnAsnAsnLeuGluLeuHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      rcadgadarcaradarrecriercrargaarargriccraaraaaaccerreagriccar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTTGCAAAGTTCACTGTTGAAAATAACACCCCATGTTTCTACACGGGTCATGGGAACATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LysSerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LeuLeuGlyGlyGlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLysGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTTCTTGGGCAAGGTGGATTTGGATATGTGCACAAAGGAGTACTTCCAAACGGTAAAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    grescrarcaascastroaaasccesaascesacaasessascereastroaascasas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTTGAAATTATCAGTCGAGTGCATCATAGGCATTTGGTTTCTTTAGTTGGCTATTGCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerAlaLysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuHisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IleLysAlaSerAsnIleLeuIleAspPheLysPheGluAlaLysValAlaAspPheGly
                                                                                                                                                                   /mol_type="mRNA"
/cultivar="Red Creole(bulbs), unknown(callus), Ebano
                             Fax: 608-262-4743
Email: mjhavey@facstaff.wisc.edu
IngR sequence name AACM44TR. For more information:
http://haveylab.hort.wisc.edu
Seq primer: CAG GAA ACA GCT ATG ACC.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                           788
200
300
000
000
 USA
                                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
Linden Drive, Madison, WI 53706, 608-262-1830
                                                                                                                                                     organism="Allium cepa"
                                                                                                                                                                                                                   /db_xref="taxon:4679"
/clone="ACACM44"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-086-464-2 (1-647) x CF436437 (1-788)
                                                                                                                                                                                                      Texas Legend(roots)"
                                                                                                                                                                                                                                                                                                                                                                                                                                         6.07e-26
1086.00
87.79%
77.86%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              31.45%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
Best Local Similarity:
1575 |
Tel:
                                                                                                                                                                                                                                                                                                                                                                                                                             Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match:
DB:
                                                                                                                                       source
                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 788 bp mRNA linear EST 04-SEP-2003
ACACM44, mRNA sequence.
CF436437
                                                                                                                                   LysIleIleHisArgAspIleLysAlaSerAsnIleLeuIleAspPheLysPheGluAla 413
                                                                                                                                                                                                      433
                                                                                                                                                                                                                                                                      ArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThr 453
                                                                                                                                                                                                                                                                                                                                          473
                                 121
                                                                                                                                                                                                                      ProValAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAlaArgProLeu 493
                                                                                                                                                                                                                                                                                                                                                                                                                             LeudsnargalaSerGluGlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsn 513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SerAlaArgArgArgProArgMetSerGlnIleValArgAlaLeuGluGlyAsnValSer 553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        593
                                                                  LeuLysileAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCysAsnPro 393
                                                                                                  181
                                                                                                                                                                                                                                                                                                         AGAGTAATGGGCACCTTTGGGTATTTGGCACCTGAGTATGCATCTTCTGGCAAGCTAACA 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsnValTyrSerSerTyrGly 573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota, Vizidiplantae, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Magnoliophyta, Liliopsida, Asparagales, Alliaceae,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 (bases 1 to 788)
Havey,M.J., Cheung,F., Van Aken,S., Utterback,T. and Town,C.D.
Expressed Sequence Tags from a normalized library of mixed onion
 AsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrpSerThrArg
                     LysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThrAsnThrHisValSerThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyTyrAspArgGluGluMetAlaArgMetValAlaCysAlaAlaAlaCysValArgHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GACTTCAATCCTAATGAGATGGCAAGAATAGCCTGTGCAGCTGCATGTGTACGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlySerThrAspTyrAspSerSerGlnTyrAsnGluAspWetLysLysPheArgLysMet
                                                                                                                                                                                                                                                                                                                                     GluLysSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThrGlyArgArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCTGCACGTCGTCGGCCACGTATGAGTCAGGTCGTTCGGGCTTTGGAGGGCAATGTGTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    719 AGCAGCTCCGATTACGATTCTGGCCAGTACAACGAGGACATGAAGAAGTTCAAGAAGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnProThr 610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         =
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tissues (Allium cepa)
Unpublished (2003)
Contact: Havey MJ
Department of Horticulture
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CF436437.1 GI:34459127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Allium cepa (onion)
Allium cepa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Allium.
                                 62
                                                                  374
                                                                                                122
                                                                                                                                   394
                                                                                                                                                                     182
                                                                                                                                                                                                                                    242
                                                                                                                                                                                                                                                                                                       302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               514
                                                                                                                                                                                                      414
                                                                                                                                                                                                                                                                       434
                                                                                                                                                                                                                                                                                                                                                                          362
                                                                                                                                                                                                                                                                                                                                                                                                           474
                                                                                                                                                                                                                                                                                                                                                                                                                                           422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     779
                                                                                                                                                                                                                                                                                                                                        454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 3
CF436437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
KEYWORDS
```

279

299

61

121

339 241 359

181

379

361

301

399

419

```
US-10-086-464-2 (1-647) x CF436655 (1-789)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BM408099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EST
                                                                                                                 280
                                         260
                                                                                                                                                                                                                                                                                                                                                                                                                    360
                                                                                                                                                    62
                                                                                                                                                                                         300
                                                                                                                                                                                                                              122
                                                                                                                                                                                                                                                                                                       182
                                                                                                                                                                                                                                                                                                                                                                                                                                                        302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 5
BM408099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                       8 8
                                                                                                       ò
                                                                                                                                              셤
                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                              ♂
                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ठे
                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1575 Linden Dilve, madison, wi 53/05, USA
Tel: 608-262-1830
Eax: 608-262-1830
Eax: 608-262-1830
Eax: 608-262-1830
Eax: 608-262-1830
Exa: 608-262-1830
Exa: 608-262-1830

Tigh sequence name ACACK26TR. For more information:

Location/Qualifiers

1. 789
Corganism="Allium cepa"

Amol type="mRNA"

Cullivar="Red Creole (bulbs), unknown (callus), Ebano & Texas Legend(roots)"

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*

Adb_Arck26*
                                                                                                                                                                                                                                                                                                                                                                     EST673000 normalized cDNA library of onion Allium cepa cDNA clone ACACK26, mRNA sequence.
                                                        SerPheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsn 479
                                                                                                                                    499
                                                                                                                                                                                                             500 GlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGlu 519
                                                                                                                                                                                                                                                  781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Magnoliophyta, Liliopsida, Asparagales, Alliaceae,
Allium.
                                                                                                                                                                        721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Town, C.D. mixed onion
                                                                              ACTIATACAGATGATAGTTTGGTCGATTGGCCAAGACCATTGCTGCAGAAGGCTATGGAG
                                                                                                                                                                                                                                  480 ValTyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 (bases 1 to 789)
Havey, M.J., Cheung, F., Van Aken, S., Utterback, T. and Expressed Sequence Tags from a normalized library of trisques (Allium cepa)
Unpublished (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      289
24
35
0
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Havey MJ
Department of Horticulture
USDA-ARS and University of Wisconsin
1575 Linden Drive, Madison, WI 53706,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CF436655.1 GI:34459345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1.82e-25
1071.00
86.64%
77.48%
31.02%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Allium cepa (onion)
Allium cepa
                                                                                                                                                                                                                                                                                     MetAla 521
                                                                                                                                                                                                                                                                                                               ATGGCA 787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment Scores:
Pred. No.:
Score:
                                                                                                                                                                          662
                                                                                                                                                                                                                                                  722
                                                                                                                                                                                                                                                                                       520
                       542
                                                          460
                                                                                                                                                                                                                                                                                                                                                              RESULT 4
CF436655
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                          g
                                                                                      요
                                                                                                                                   ò
                                                                                                                                                              a
                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                     ò
                                                          ò
```

```
DUNAVOURY TO TOOLS 759 bp mRNA linear EST 10-MAR-2003 EST582426 potato roots Solanum tuberosum cDNA clone cPRO33021 5' end, mRNA sequence.
                                                                                                                                        319
                                                                                                                                                                                                                 339
                                                                                                                                                                                                                                                                                   359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      499
                                                                      299
                                                                                                                                                                            181
                                                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                        379
                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                            399
                                                                                                                                                                                                                                                                                                                                                                                                                                                               421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                460 SerPheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsn 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             500 GlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGlu 519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Sasteride; lamides; Solanales; Solanaceae; Solanum.

1 (bases 1 to 759)
van der Hoeven,R., Sun,H., Karamycheva,S.A., Tsai,J., Van Aken,S.,
                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                        480 ValTyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LysSerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsn
                  2 AAGAGCACTTTCACATATGAAGAATTGGCGATAGCTACAAATGGGTTTTCCGACTATAAT
                                                                    LeuLeuGlyGlnGlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLysGlu
                                                                                                                                          ValalaValiysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGlu
                                                                                                                                                               320 ValGluIleIleSerArgValHisHisArgHisLeuValSerLeuValGlyTyrCysIle
                                                                                                                                                                                                                                 340 AlaGlyAlaLysArgLeuLeuValTyrGluPheValProAsnAsnAsnLeuGluLeuHis
                                                                                                                                                                                                                                                                                                          SerAlaLysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LeuAlaLys1leAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LeuHisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 362 TCTGCCAAGGGGTTGGCATATCTCCATGAAGATTGTCATCCCAAAATTATTCATCGTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 400 ilelysAlaSerAsnIleLeuIleAspPheLysPheGluAlaLysValAlaAspPheGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Solanum tuberosum (potato)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BM408099.1 GI:18259729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Solanum tuberosum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     520 MetAla 521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Arccca 787
```

```
/Lissue type="fallus, roots, and young bulbs"
/clone lib="normalized cDNA library of onion"
/clone lib="normalized cDNA library of onion"
/clone lib="normalized cDNA library of onion"
/clone lib="conion" of library (lary library l
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           785 bp mRNA linear EST 04-SEP-2003 normalized cDNA library of onion Allium cepa cDNA clone
                                                541
                                                                                                    511
                                                                                                                                                                                                        531
                                                                                                                                                                                                                                                            661
491
                                                                                                                                  CCATTACTCACACGAGCTTTAGAAGATGAAAAGTTTGATACCCTTGTTGATCGTCGGCTA 601
                                                                                                                                                                                                                                                                                                            532 ArgHisSerAlaArgArgArgProArgMetSerGlnIleValArgAlaLeuGluGlyAsn 551
                                                                                                                                                                                                                                                                                                                                          662 CGTCATTCAGCAAAGCGTAGACCACGAATGACACAGGTTCTCCGAGCCTTGGAAGGAGGAGT 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Magnoliophyta, Liliopsida, Asparagales, Alliaceae,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 (bases 1 to 785)
Havey, M.J., Cheung, F., Van Aken, S., Utterback, T. and Town, C.D.
Expressed Sequence Tags from a normalized library of mixed onion
tissues (Allium cepa)
Unpublished (2003)
                                                                                                                                                                                                                                         602 GAAAATGATTATAAACCATAATGAGATGGCTCGCATGGTTGCTTGTTGTGCTTGTTGTGTG
  ArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAlaArg
                             CGTCGGCCTGTTGACTCTACATCATACATCGAAGATAGTTTGGTGGACTGGGCACGT
                                                                                                    ProLeuLeuAsnArgAlaSerGluGluGlyAspPheGluGlyLeuAlaAspAlaLysMet
                                                                                                                                                                                                           512 AsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAlaAlaAlaCysVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /mol type="mRNA"
/cultivar="Red Creole(bulbs), unknown(callus), Ebano
Texas Legend(roots)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Fax: 608-262-4743
Email: mjhavey@facstaff.wisc.edu
IGR sequence name ACACJ26TR. For more information:
http://haveylab.hort.wisc.edu
seq primer: CAG GAA ACA GCT ATG ACC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                785
204
34
1
                                                                                                                                                                                                                                                                                                                                                                                                              ValSerLeuSerAspLeuAsnGluGlyMetArgPro 563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                USDA-ARS and University of Wisconsin
1575 Linden Drive, Madison, WI 53706,
Tel: 608-262-1830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="taxon:4679"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Allium cepa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Contact: Havey MJ
Department of Horticulture
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 clone="ACACJ26"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CF436122.1 GI:34458812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EST672467 normalized cL
ACACJ26, mRNA sequence.
CF436122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2.61e-25
1066.00
86.64%
77.86%
30.87%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Allium cepa (onion)
Allium cepa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CF436122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Allium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                   552
472
                                                482
                                                                                                      492
                                                                                                                                                     542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 6
CF436122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DRIGIN
                                   g
                                                                                                                                          a
                                                                                                                                                                                                                                                 ద
                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                    ઠે
                                                                                                                                                                                                   ठे
                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /clone lib="potato roots"
//clone lib="potato roots"
/note="Vector: pBluescript SK(-); Site_1: EcoRI; Site_2:
XhoI; supplier: Cornell University, Tanksley lab;
equencing; The Institute for Genomic Research. Roots were
isolated from in vitro grown stem cuttings on CM medium.
Roots were isolated two weeks after placing the stem
cuttings from in vitro grown plants on medium."
                  Tankeley, S. and Baker, B. Generation of ESTs from potato roots
Generation of ESTs from potato roots
Generation of ESTs from potato roots
Generation of ESTs from potato roots
Contact: Robin Buell
The Institute for Genomic Research
9712 Medical Center Dr, Rockville, MD 20850, USA
Email: potato-array@tigr.og
This clone can be obtained from the University of Arizona Genomics
Institute. Orders can be made through URL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Thrargleulys1leAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCys 391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGlyLy8 451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrpSer 371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    182 ATACGGCTAAAGATTGCTCTAGGGTCAGCTAAAGGACTGGCATATCTGCATGAAGACTGC 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAGGCTAAGGTTGCTGATTTTGGACTTGCCAAGCTAACTTCTGATGTTAATACTCATGTC 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCCACCAGAGTGAGAACCTTTGGGTATTTGGCTCCAGAATATGCTTCCTCTGGAAAG 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AsnProLysIlelleHisArgAspIleLysAlaSerAsnIleLeuIleAspPheLysPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlualalysValalaaspPheGlyLeualaLysIleAlaSerAspThrAsnThrHisVal
Utterback, T., Chiemingo, A., Bougri, O., Buell, C.R., Ronning, C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /tissue_type="roots"
/dev_stage="in vitro grown stem cuttings"
/lab_host="SOLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       759
200
25
0
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                /organism="Solanum tuberosum"
                                                                                                                                                                                                                                                                                                                                                                                      /mol_type="mRNA"
/cultivar="Kennebec"
/db_xref="taxon:4113"
/clone="cPRO33021"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-086-464-2 (1-647) x BM408099 (1-759)
                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2.04e-25
1069.00
89.29%
79.37%
30.96%
                                                                                                                                                                                                                                                                                       Seg primer: T3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       422
                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ..
9
                                                TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DRIGIN
```

음

δ

ઠે

8 è g ò 셤 셤

ò 유 ठे

ò

g

δ

Arizona Genomics

oŧ USA

from tubers" harvest"

eyes post

8 6 8 6 8 6 8 6 8

ď

8 8 8

ઠ

```
/clone_lib="cSTS" finescript SK(-); Site 1: BCORI; Site 2: Xhote="Weetcr: pBluescript SK(-); Site 1: BCORI; Site 2: Xhot; Various sizes of sprouting eyes (Zmm to 15mm) were taken from tubers. The tubers were incubated at 26C in the dark for 2-3 weeks prior to sprouting. The eyes were tubers in liquid nitrogen immediately upon removal from tubers."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlullelleSerArgValHisHisArgHisLeuValSerLeuValGlyTyrCysIleAla 340
van der Hoeven,R., Bezzerides,J., Sun,H., Cho,J., Chiemingo,A., Bougri,O., Buell,C.R., Ronning,C., Tanksley,S. and Baker,B. Generations of ESTs from sprouting potato eyes Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361 HisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTAAAGGACTGGCATATCTGCATGAAGACTGCCAACCGAAAATCATTACCGTGATATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TyrleuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPheSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301 AlaValLysGlnLeuLysValGlySerGlyGlnGlyGlwArgGluPheGlnAlaGluVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                381 AlalysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAspIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LysAlaSerAsn11eLeu11eAspPheLysPheGluAlaLysValAlaAspPheGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301 AAGGCAGCTAATATACTTATCGACTTTAATTTTGAGGCTAAGGTTGCTGATTTTGGACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AlaLysIleAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Contract: Robin Buell
The Institute for Genomic Research
17 Medical Center Dr. Rockville, MD 20850, US.
17 Medical Center Dr. Rockville, MD 20850, US.
17 Medical Center Dr. Bmail: potato-array@tigr.org
This clone can be obtained from the University of the Corporate or Dr. Marieute.
18 Medical Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Corporational Co
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                      /organism="Solanum tuberosum"
                                                                                                                                                                                                                                                                                                                                                                                                                      /db_xref="taxon:4113"
/clone="cSTS15A23"
/tissue_type="sprouting ey/dev stage="12-14 weeks pc /lab_host="SOLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (1-757)
                                                                                                                                                                                                                                                                                                                                                                           /mol_type="mRNA"
/cultivar="Kennebec"
                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-086-464-2 (1-647) x BG596561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2.72e-25
1065.00
89.16%
80.32%
30.84%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pred. No.:
                                                   TITLE
JOURNAL
COMMENT
          AUTHORS
                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    $ 8 $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BG596561 757 bp mRNA linear EST 07-MAR-2003 EST495239 cSTS Solanum tuberosum cDNA clone cSTS15A23 5' sequence, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Solanum tuberosum (potato)
Solanum tuberosum
Sukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
asterids; lamids; Solanales; Solanaceae; Solanum.
                                                                                                                                                                                                                                                                            ValAlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGlu 319
                                                                                                                                                                                                                                                                                                                                                                           ValGluIleIleSerArgValHisHisArgHisLeuValSerLeuValGlyTyrCysIle 339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SeralaLysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAsp 399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyTyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPhe 459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SerPheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsn 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      519
                                                                                                                                                                                299
                                                                                                                                                                                                                                                                                                                                                                                                          GTTGAAATTATCAGTCGAGTGCATCATAGGCATTTGGTTTCTTTAGTTGGCTATTGCATT 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCTGCCAAGGGGTTGGCATATCTCCATGAAGATTGTCATCCCAAAATTATTCATCGTGAT 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LeuAlaLysIleAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPhe 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   260 LysserThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsn 279
                                                                                                                                                                                                                                                                                                           riccarccaaaagarcriccaccrarccarricccaacccacccgrraaaaarriccrrrcccr 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTTCTTGGGCAAGGTGGATTTGGATATGTGCACAAAGGAGTACTTCCAAACGGTAAAAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGGTATCTGGCACCAGAATATGCATCCTCTGGTAAACTAAGTGATAAATCAGATGTCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuHisGlyGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuleuGlyGlnGlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLysGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IleLysAlaSerAsnIleLeuIleAspPheLysPheGluAlaLysValAlaAspPheGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            uGlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGl
                                 US-10-086-464-2 (1-647) x CF436122 (1-785)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BG596561.1 GI:13614701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             uMet 520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AATG 785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BG596561
                                                                                                                               ~
                                                                                                                                                                                   280
                                                                                                                                                                                                                                                                               300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             722
                                                                                                                                                                                                                              62
                                                                                                                                                                                                                                                                                                                             122
                                                                                                                                                                                                                                                                                                                                                                             320
                                                                                                                                                                                                                                                                                                                                                                                                                            182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BG596561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 7
```

용

ò 유 장 셤

8 8

à

ठे हे ठे

22 22 22 27 0 0

360

180

120

9

380

240 400 300

360

440 420

420

us-10-086-464-2.p2n.rst

g

g ઠે 요 ò g

ઠે 셤

ઠે

```
Gosspium arboreum
Bukaryota, Viridiplantae, Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
rosids; eurosids II; Malvales; Malvaceae; Malvoideae; Gossppium.
1 (bases 1 to 622)
Wing, R.A., Frisch, D., Yu, Y., Main, D., Rambo, T., Simmons, J.,
Henry, D., Wood, T.C., Leadle, A. and Wilkins, T.A.
An integrated analysis of the genetics, development, and evolution
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BG441204 (692 bp mRNA linear EST 15-MAR-2001 GA Ea0012C15f Gossypium arboreum 7-10 dpa fiber library Gossypium arboreum cDNA clone GA Ea0012C15f, mRNA sequence.
                                                                                                                                                                                                                                                             370
                                                                                                                                                                                                                                                                                                      180
                                                                                                                                                                                                                                                                                                                                                   390
                                                                                                                                                                                                                                                                                                                                                                                           240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  550
                                                                                                                                                                        350
                                                                                                                                                                                                                                                                                                                                                                                                                                      410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           720
                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                              LeuValSerLeuValGlyTyrCygIleAlaGlyAlaLygArgLeuLeuValTyrGluPhe
                                                                                                                                                                                                   61 CTCGTCTCCTTGGTTGGTTATTGCATTTCTGGGGCAAGAGATTGCTTGTCTATGAGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               311 GlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHisHisArgHis
                                                                                                              351 ValProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrp
                                                                                                                                                                                                                                                                                                   121 GICCCCAACAACACATIGGAAITCCACTIGCACGGAAAAGGCCGACCAACAAIGGAGIGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PheGlualaLysValalaAspPheGlyLeuAlaLysIleAlaSerAspThrAsnThrHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTTTCGACAAGAGTAATGGGCACTTTTGGATATCTAGCACCAGAGTACGCATCTTCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             491 ArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAlaLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGly
    0
      Gaps:
                                            US-10-086-464-2 (1-647) x CB655196 (1-731)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BG441204.1 GI:13350856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gossypium arboreum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              :::||||||
GACGTGTCT 729
    14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        551 AsnValSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EST.
                                                                                                                                                                          331
                                                                                                                             Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BG441204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                       ઠ
                                                                                                                         셤
                                                                                                                                                                        Š
                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                              ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Site 1: EcoRI; Site 2: Rice Blast (C9240-1)"
                                                                                                                                                                                                                   099
                                                                                                                                                                                                                                                             540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EST 09-APR-2003
                                                                                                                                                                          520
                                                                                                                                                                                                                                                                                                      720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Oryza sativa (japonica cultivar-group)
Oryza sativa (japonica cultivar-group)
Eukaryota, Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Eukaryota, Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Ehrhartoideae; Oryzae, Oryza.
Ehrhartoideae; Oryzae, Oryza.
I (Dasea; 1 to 731)
Jantasuriyarat, C., Lu, G., Gowda, M., Hatfield, J., Zhou, B., Mazur, E., Kudrna, D., Dean, R., Soderlund, C., Wing, R. and Wang, G.
Large-scale identification of ESTs involved in the interaction Unpublished (2003)
Contact: Rod Wing
PheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnVal 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CB655196 731 bp mRNA linear EST 09-APR-20 OSJNEC08F21.f OSJNEC Oryza sativa (japonica cultivar-group) cDNA clone OSJNEC08F21 5', mRNA sequence.
                                                                                   AlaArgMetValAlaCysAlaAlaAlaCysValArgHisSerAlaArgArgProArg
                        GlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMet
                                                                                                                                                                                                                   GAAAAGTTTGATACCCTTGTTGATCGTCGCCTAGAAAATGATTATAACCATAATGAGATG
                                                                                                                                                                                                                                                                                                      GCTCGCATGCTTGTTGTGCTGCTTGTGTGTGTGTCATTCAGCAAAGCGTAGACCACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Oryza sativa (japonica cultivar-group)"
/mol type="mRNA"
/mol type="mRNA"
/cultivar="Nipponbare"
/db xxef="teaxon:39947"
/clone="OSJNEC08F21"
/tissue_type="laef"
/dev stage="1 week"
/dev stage="3 week"
/lab host="DH10B"
/clone_lib="OSJNEC"
/note="Teator: pBluescript II KS +; Site_1: EcoRI; Site Note="Teator"
/note="Teator"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AZ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Arizona Genomics Institute
University of Arizona
Biological Sciences West, 448A, P.O. Box 21008B, Tucson,
85721-008B, USA
Tel: 520 626, 3967
Fax: 520 621 9288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         731
199
23
21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FORWARD: gta aaa cga cgg cca gtg
BACKWARD: gga aac agc tat gac cat g
Plate: 08 row: F column: 21
Seq primer: gta aaa cga cgg cca gtg.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                              MetSerGlnIleValArgAlaLeuGlu 549
||||::||||::|||||||||||||||||||||
ATGACACAGGTTCTCCGAGCCTTGGAA 747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Email: http://genome.arizona.edu
PCR PRimers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CB655196.1 GI:29658921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3.05e-25
1063.00
91.36%
81.89%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1. .731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alignment Scores:
                                                                                                                                                                                                                                                                                                   661
                                                                                                                             541
                                                                                                                                                                        501
                                                                                                                                                                                                                   601
                                                                                                                                                                                                                                                             521
                                                                                                                                                                                                                                                                                                                                                541
                                                                                                                                                                                                                                                                                                                                                                                         721
  461
                                            481
                                                                                     481
                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 8
CB655196
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
```

466

```
CD839231 723 bp mRNA linear EST 10-JUL-2003
RFO2.114I04F010529 RFO2 Brassica napus cDNA clone RFO2114I04, mRNA
sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
rosids; eurosids II; Brassicales; Brassicaceae; Brassica.
1 (bases 1 to 723)
Genoplante.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    489 TrphlaArgProLeuLeuAsnArgAlaSerGluGlyAspPheGluGlyLeuAlaAsp 508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              93, rue Henri Rochefort 91025 EVRY CEDEX France
Tel: 33 1 69 47 54 10
Fax: 33 1 69 47 54 10
Fhis sequence has been generated in the framework of the french plant genomics programme 'Genoplante' (http://www.genoplante.com and http://genoplante-info.infobiogen.fr).
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Genoplante, a major partnership french program in plant genomics Unpublished (2003)
                                                                                                 469 IleThrGlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuValAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTCAACACGCACGTCTCCACCAGGGTAATTTTTAGCCCCTGAGTAT
                                                                    1...723 | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | Augustic | A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               723
1199
0
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-086-464-2 (1-647) x CD839231 (1-723)
                                                                                                                                                                   GlubeulleThrGlyArgArg 473
                                                                                                                                                                                                   GAGTTGATTACCGGTCACAGA 691
                                                                                                                                                                                                                                                                                                                                                                                                         CD839231.1 GI:32521171
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Brassica napus (rape)
Brassica napus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3.37e-24
1030.00
100.00%
100.00%
29.83%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Contact: Genoplante
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Genoplante
                                                                                                                                                                                                                                                                                                                                                                                        CD839231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                   EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            449
                                                                                                                                                                        467
                                                                                                                                                                                                                    671
                                                                                                                                                                                                                                                                RESULT 10
CD839231
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORIGIN
                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                             8 8
                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HisHisArgHisLeuValSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeu 346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ValTyrGluPheValProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgPro 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ThrMetGluTrpSerThrArgLeuLys1leAlaLeuGlySerAlaLysGlyLeuSerTyr 386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuHisGluAspCyaAsnProLysIleIleHisArgAspIleLysAlaSerAsnIleLeu 406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | IleAgpPheLysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAsp 426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ThrAsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyr 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         147 LeuProProSerProGlyLeuValleuGlyPheSerLysSerThrPheThrTyrGlu 266
                                                                                                                                                                                                                                                                                 1. .692

/organism="Gossypium arboreum"

/mol_type="mRNA"

/strain="ALR"

/strain="ALR"

/strain="ALR"

/strain="ALR"

/db xref="taxon:29729"

/clone="GA_Ea0012C15f"

/tissue_type="Fibers isolated from bolls harvested 7-10 dpa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /clone_lib="Gossypium arboreum 7-10 dpa fiber library"
/note="Vector: pBK-CMV; Site_l: EcoRI; Site_2: XhoI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        191 GCTGGAAGTGGGCAAGGCGAGAGAATTTCAGGCTGAAGTTGAGATCATTAGCCGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTTTATGAGTTTGTTCCAAACAACACCTTGGAGTTTCACTTGCATGGGAAGGGGGACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            371 ACCATGGATTGGCCGACAAGGATGGATAGTTTTAGGATCTGCAAAAGGACTGGCATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TIGGATITICAAGITIGAAGCAAAGGIIGCIGATITITGGACTAGCGAAAAITGCTICCGAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               307 ValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 692
1198
117
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
Conservative:
Mismatches:
Indels:
  of the cotton fiber
Unpublished (2000)
Contact: Wing RA
Clemson University
Clemson University
100 Jordan Hall, Clemson, SC 29634, USA
Tel: 864 656 7288
Fax: 864 656 4293
Email: rwing@clemson.edu
Seq primer: TAATACGACTCACTATAGGG
High quality sequence stop: 690.
Location/Qualifiers
                                                                                                                            SC 29634, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-086-464-2 (1-647) x BG441204 (1-692)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'lab host="E. coli"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9.38e-25
1047.00
94.71$
87.22$
30.32$
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                427
                               JOURNAL
                                                                                                                                                                                                                                                                       FEATURES
                                                     COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score:
```

g

ò

ò

8 S g g

ò

셤 ò g ઠે 셤

ठ

g

ઠે

g

ò

ò

488 121

181

468

Percent Similarity; 79.934 Minanthes: 46 Duery March: 11 10-10-06-46-4 (1-647) * Anito241 (1-1053) Oy Shapromineciuringsorm-rappendy limitating and control of correct and control o	AY108243 LOCUS
229 AlaCysvalArgsHisSerAlahrakragarparakragarcsCordarysCordoccarray 242 GCTUCATCCCCATTCACCCCCCCCAATCCCCCCAATCCCCCCCC	ent Scores: No.:
OY DD OY DD	ORIGIN Alignme Pred. R

532

542 572

552

592 629 612 716 631 776 646 836

602

```
BM358715
GA_Ba0012D16r Gossypium arboreum 7-10 dpa fiber library Gossypium
arboreum cDNA clone GA_Ba0012D16r, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
rosids; eurosids II; Malvales; Malvaceae; Malvoideae; Gossypium.
1 (bases 1 to 666)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 (bases 1 to 666)
Wing,R.a., Frisch,D., Yu,Y., Main,D., Rambo,T., Simmons,J.,
Wing,R.a., Wood,T.C., Leslie,A. and Wilkins,T.A.
An integrated analysis of the genetics, development, and evolution of the cotton fiber
Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /tissue_type="Fibers isolated from bolls harvested 7-10
                                          ---AGCAGCTCTGATTACGATTCCGGGCAGTACAACGAGGACATGCAGAAGTTCAGGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                     LeuleuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsn
                                                                                                                                                                                                                                                     SerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsnValTyrSerSerTyr
                                                                                                                                                                                                                                                                          573 GlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMetLysLysPheArgLys
                                                                                                                                                                                                                                                                                                                                                                                                               593 MetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnProThrSerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          613 TyrdlyLeuTyrProSerGlySerSerSerGluGlyGlnThrThrArgGluMet---Glu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   632 MetGlyLysleLysArgThrGly------GlnGlyTyrSerGlyProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   513 AsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAlaAlaAlaCysValArg
                                                                                                                                                                           HisserAlaArgArgProArgMetSerGlnIleValArgAlaLeuGluGlyAsnVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="Gossypium arboreum"
/mol_type="mRNA"
/strain="AKA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Clemson University Genomics Institute
Clemson University
100 Uordan Hall, Clemson, SC 29634, US
Tel: 864 656 7288
Fax: 864 656 4293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Email: rwing@clemson.edu
Total High Quality bases = 646
Seg primer: TAATACGACTCACTATAGGG
High quality sequence stop: 666.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /db_xref="taxon:29729"
/clone="GA_Ea0012D16r"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         dpa"
/lab_host="E. coli"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'cultivar="8400"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BM358715.1 GI:18099461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gossypium arboreum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gossypium arboreum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 999. .1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Contact: Wing RA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EST
                                                                                                                                       423
                                                                                                                                                                             533
                                                                                                                                                                                                                                                       553
                                                                                                                                                                                                                                                                                                                                                                          603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BM358715
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
                                                                                                                                                                                                                                                                                                                                                                셤
                                             g
                                                                                                                              셤
                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                          요
                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                 ð
                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                      Submitted (25-APR-2002) Maize Mapping Project, University of Submitted (25-APR-2002) Maize Mapping Project, University of Missouri, Columbia, MO 65211, USA His you are interested in getting corresponding physical clones, these are publicly available from ZmDB and may be found by BLAST searching at MSL, maizemap.org; ZmDB, www.zmdb.iastate.edu; TIGR, www.tbgr.org; or NCBI, www.ncbi.nlm.nih.gov. When the source of the maize cDNA sequences is either Virginia Walbot, Stanford or Pat Schnable, Iowa State, then clones may be requested from ZmDB: www.zmdb.iastate.edu.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         373 ArgLeuLysIleAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCysAsn 392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProLys1le1leHisArgAsp1leLysAlaSerAsn1leLeu1leAspPheLysPheGlu 412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCAAAGATCATCCACCGCGACATTAAGGCATCTAACATTCTTGTTTCATCAAATTTGAA 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Spermatophyta; Magnoliophyta; Luliopsida; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACCAD clade; Panicoideae; Andropogoneae; Zea.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        123 GCTATGGTTGCTGACTTTGGACTTGCAAAGTTCACTACTGATAACAACACCCATGTGTCA 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="this sequence is part of a project of EST assemblies resulting from the application of public contigs to seed DuPont contigs; this resource was assembled by DuPont as part of a collaboration for the overgo addressing of EACs in conjunction with the Maize Mapping Project"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ThrargvalMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGlyLygLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3 AGATTAAAGATCGCTCTGGGTGCTGCCAAGGGTTTAGCTTATCTTCATGAAGACTGCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThrAsnThrHisValSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACAAGAGTAATGGGCACCTTTGGGTATTTGGCACCCGAGTATGCAGCATCTGGCAAGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ThrGluLysSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThrGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ArgProValAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAlaArgPro
                                                                                                                1 (bases 1 to 1016)
Hainey, C.F., Dolan,M., Miao,G.H., Vogel,J.M., Whitsitt,M.S.,
Arthur,L.W., Hanafey,M., Morgante,M. and Tingey,S.V.
Maize Mapping Project/DuPont Consensus Sequences for Design of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /clone_lib="Maize Mapping Project/DuPont Cornsensus
Library"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1016
200
30
42
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Zea mays"
/mol type="mRNA"
/db xref="MaizeDB:637888"
/db xref="taxon:4577"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (1-1016)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-086-464-2 (1-647) x AY108243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6.53e-24
1025.00
82.14%
71.43%
29.68%
                                                                                                                                                                                              Overgo Probes
Unpublished (2002)
2 (bases 1 to 1016)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Percent Similarity:
Best Local Similarity:
                      таув
                                                                                                                                                                                                                                                       Coe, E.H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ..
No
                                    ORGANISM
                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                          TITLE
JOURNAL
                                                                                                                                     AUTHORS
                                                                                                                  REFERENCE
                                                                                                                                                                                                                JOURNAL
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      d
```

ò

ઠે

ò

ò

ò

be found

Pred. No.:

267 11

Š 셤 ठे a ઠે 셤 ઠે g ठे 셤 ઠ g ð a ठ a 8 g

287

131

7

327

347 311 367

251

431

491

387

551

g

ઠે

611

셤

8

DEFINITION

CA072174 LOCUS

ACCESSION VERSION KEYWORDS SOURCE ORGANISM

AUTHORS REFERENCE

```
/note=_organ: Apical meristem and tissues surrounding of mature plants; Vector: pSport1; Site 1: Sal1; Site 2: Not1; An unidirectional CDNA library generated from Not1; An unidirectional CDNA library generated from Not1; An unidirectional cDNA library generated from Datas). CDNA was prepared from polyA+ mRNA using Superscript plasmid System Kit (Invitrogen). The Gouble-strand CDNAs were fractionated in a sepharose CL-2B 40cm-columns and fragments sizing between 0.8 and 1.5 KD were directionally cloned into the vector. Details of each source of RNA and library construction can be obtained at http://sucest.lad.ic.unicamp.br/public=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHisHisArgHis 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           371 SerThrArgLeuLysIleAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAsp 390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CysAsnProLysIleIleHisArgAspIleLysAlaSerAsnIleLeuIleAspPheLys 410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ValProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrp 370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CAGGGAGAACGCGAGTTTCAGGCAGAGGTTGAGATTATCAGCAGAGGTACATCACAAGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuValSerLeuValGlyTyrCysIleAlaGlyAlaLygArgLeuLeuValTyrGluPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 64 AAAGGAGTGCTACCAAATGGCACAGAGGTTGCTGTTAAGCAGTTAAGAGATGGAAGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTTGTATCCTTGGTCGGCTATTGCATTTCTGGAGCCAACAGGTTGCTCGTCTACGAGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysValGlySerGly
The libraries that made SUCEST
Genet. Mol. Biol. 24 (1-4), 1-7 (2001)
Contact: Arruda P
Contact: Arruda P
Contact: Arruda P
Contro de Biologia Molecular e Engenharia Genetica
Universidade Estadual de Campinas
Caixa Postal 6010, 13083-970, Campinas SP, Brazil
Tel: 55 19 3788 1137
Fax: 55 19 3788 1137
Fax: 55 19 3788 1137
Clone distribution: clone distribution information can be f
through the Brazilian Clone Collection Center (BCCC) at
http://www.bcccenter.fcav.unesp.br
Plate: 004 row: A column: 11
Seq primer: T7 Promoter Primer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   695
119
116
116
                                                                                                                                                                                                                                                                                                                             1. .695
/organism="Saccharum officinarum"
/mol type="mRNA"
/db xref="taxon:4547"
/clone="SCCCAM1004A11"
/lab host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-086-464-2 (1-647) x CA072174 (1-695)
                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                     /clone_lib="AM1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1.13e-23
1013.00
91.85%
83.69%
29.34%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                  Source
      TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EST 23-SEP-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SCCCAM1004A11.g AM1 Saccharum officinarum cDNA clone SCCCAM1004A11 5', mRNA sequence. CA072174.1 GI:34924325 EST.
                                                                                                                                                                                                                                                                                                                                                                                         GluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPhe 286
                                                                                                                                                                                                                                                                                                                                                                                                                                      130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyTyrValHisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLys 306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HisHisArgHisLeuValSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeu 346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ValTyrGluPheValProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgPro 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySerAlaLysGlyLeuSerTyr 386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuhiaGluaspCysAsnProLys1leIleHisArgAspIleLysAlaSerAsnIleLeu 406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIGGATITICAAGITIGAAGGTIGCTGATITITIGACTAGCGAAAATIGCTICCGAT 550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    427 ThrAsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyr 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTCAACACGCACCTCTCCACCAGGGGGAACTTTCGGGTATTTAGCCCCTGAGTAT 610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    307 ValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgVal 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       371 ACCATGGATTGGCCGACAAGGATGAAATTGCTTTTAGGATCTGCAAAAGGACTGGCATAT 430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    407 IleAspPheLysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAsp 426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Saccharum officinarum
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Epermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACCAD
clade; Panicoideae; Andropogoneae; Saccharum.
1 (bases 1 to 695)
Vettore, A.L., da Silva, F.R., Kemper, E.L. and Arruda, P.
                                                                                                                                                                                                                                                                                                                                                 70
        /clone_lib="Gossypium arboreum 7-10 dpa fiber library"
/note="Vector: pBK-CMV; Site_1: EcoRI; Site_2: XhoI"
                                                                                                                                                                                                                                                                                                         247 LeuProProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGlu
                                                                                                                                                                                                                                                                                                                                  CTTCCGCCTCCGTCACCTGGTATTTCCTTAGGTTTCTCGAAAAGCACTTTTAGCTATGAA
                                                                                                                                                                                                                                                                                                                                                                                                                    GAATTAGCGAGAGCAACGGATGGCTTCTCGGAAGTTAACCTTCTTGGACAAGGTGGTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTGGAAGTGGGCAAGGCGGGAGAATTTCAGGCTGAAGTTGAGATCATTAGCCGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          447 AlaAlaSerGlyLysLeuThrGluLysSerAspValPheSerPheGlyValVal 464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCTTCAAGTGGAAAGCTCACTGATAAATCAGATGTTTTTCTCCTTCGGGGGTCATG
                                                                                                                 666
191
17
10
0
                                                                                                               Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                         Gaps:
                                                                                                                                                                                                                                                               US-10-086-464-2 (1-647) x BM358715 (1-666)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Saccharum officinarum
                                                                                                               7.55e-24
1018.00
95.41%
87.61%
                                                                                                                                                Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                           Alignment Scores:
```

310

63

123

350

243

303

363

us-10-086-464-2.p2n.rst

ठ g ò a ò qq ò 130

315

70

190 355

335

375 310 395 370 415

250

435 490 455 550 475 610

```
476 AspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsn 495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     California, Riverside (Fenton, Turuspekov). Plasmid DNA preparations and DNA sequencing were performed in the OD Anderson lab (all other authors)."
                                                                                                                                                                                                                                   GATGGCACAGAAGTTGCTGTGAAGCAATTAAGAGATGGAAGTGGGGCAGGGAGAGCGTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                         251 TTAGAATTCCATATACATGGAAGGCGTGGACTATGTATGACTGGCCTTCAAGACTACGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   296 SerglyLysGluValAlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGlu
                                                                                                                                                                                                                                                                                                                                                                                 LeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PheGlnAlaGluValGluIleIleSerArgValHisHisArgHisLeuValSerLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 396 IleHisArgAspIleLysAlaSerAsnIleLeuIleAspPheLysPheGluAlaLysVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            416 AlaAspPheGlyLeuAlaLysIleAlaSerAspThrAsnThrHisValSerThrArgVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SerAspValPheSerPheGlyValValLeuLeuGluLeuIleThrGlyArgArgProVal
                                                                                            715
184
25
0
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ArgalaSerGluGlnGlyAspPheGluGlyLeuAlaAsp
                                                                                           Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                        (1-715)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Search completed: May 13, 2004, 01:33:29
Job time : 3622 secs
                                                                                                                                                                                                        US-10-086-464-2 (1-647) x BU099573
                                                                                            1.04e-22
983.00
89.70%
78.97%
28.47%
                                                                                                                           Percent Similarity:
Best Local Similarity:
                                                                                 Scores:
                                                                                                                                                                                                                                                                                                                                 71
                                                                                                                                                                                                                                                                                                                                                                316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         456
                                                                                                                                                          Query Match:
DB:
                                                                                              Pred. No.:
                                                                               Alignment
                                                DRIGIN
                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                      원
                                                                                                                                                                                                                                                                                                                                                                                                                                                   쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             영 장
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 d
                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unpublished (1902)
Contact: Olin Anderson
Contact: Olin Anderson
West Area, Western Regional Research Center
800 Buchanan Street, Albany, CA 94710, USA
Fax: 5105595818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Site_1: EcoRI; Site_2: XhoI; Plants were grown under normal conditions, then drought stressed to 80%, 70% and 60% RWC at Texas Tech University (D. Zhang in HT Nguyen lab). Total RNA was prepared separately for roots collected at the three different drought conditions. Equal amounts of total RNA were pooled from all three samples, poly(A) RNA were purified, one cDNA library was made, and the cDNA clones were in vivo excised to give pBluescript SK(-) phagemids in the TJ Close lab at the University of
                                                                                                                                                                                                                                                                                                                                                BU099573 115 bp mRNA linear EST 29-AUG-2002 WHE3309_A09_A172S Chinese Spring wheat drought stressed root CDNA library Triticum aestivum cDNA clone WHE3309_A09_A17, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Triticum aestivum

Eukaryota, Viridiplantae, Streptophyta; Embryophyta; Tracheophyta;

Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;

Pooideae; Triticae; Triticum.

(bases 1 to 715)

Anderson, O. D., Chao, S., Close, T.J., Crossman, C., Fenton, R.D.,

Miscon, C., Nouyen H.T., Pham, J., Rausch, C.J., Turuspekov, Y.,

Wilson, C., Woo, J. and Zhang, D.

The structure and function of the expressed portion of the wheat
                                                                 450
                                                                                              543
                                                                                                                           470
                                                                                                                                                          603
                                                                                                                                                                                       GlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAla 490
                                                                                                                                                                                                                        657
 ValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGly
                                                                                 GTTTCAACCAGAGTAATGGGCACATTTGGGTACCTAGCACCTGAGTATGCTGCTTCTGGC
                                                                                                                           LysLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThr
                                                                                                                                                                                                                      604 GGGCGCCGTCCT----GGTAATTCAAGACAGGCAGATGACAACTTGGGTGACTGGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'note="Vector: Lambda Uni-ZAP XR, excised phagemid;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Email: oandersnopw.usda.gov
Sequences have been trimmed to remove vector sequence and
quality sequence with phred score less than 20
                                                                                                                                                                                                                                                       491 Arg-ProLeuLeuAsnArgAlaSerGluGlnGlyAsp 502
                                                                                                                                                                                                                                                                                    658 AGGGCCTTTGATGATAAAGCATTTGAGGATGGTAAT 694
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Triticum aestivum (bread wheat)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                            BU099573
BU099573.1 GI:22547372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Seq primer: SK primer
                                                                                                                                                                                                                                                                                                                                                                                                 seguence.
                              424
                                                             431
                                                                                                                                                          544
                                                                                                                           451
                                                                                            484
                                                                                                                                                                                       471
                                                                                                                                                                                                                                                                                                                 RESULT 15
BU099573
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
```

App1i

Sequence 1, Al Sequence 24, Al Sequence 1, Al Sequence 10, Al Sequence 8, Al

Appli Appli Appli Appli Appli Appli Appli Appli Appli Appli Appli Appli Appli Appli Appli Appli Appli Appli Appli Appli

Sequence Sequence Sequence

Sequence 3, A Sequence 3, A Sequence 2, A Sequence 12, Sequence 12, Sequence 2, A Sequence 2, A

Sequence Seq

Appl Appl Appl Appl Appl Appl

Sequence 15, Sequence 48, Sequence 2, Sequence 15,

Sequence 1, A Sequence 15, Sequence 15, Sequence 15, Sequence 15,

Minimum DB seq Maximum DB seq

Scoring table:

Perfect score:

ritle:

Sequence:

OM protein

Run on:

Sequence 1 Sequence 1 Sequence

```
Sequence 9, Application US/09228986

Patent No. 6359188
GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: Strabala, Timothy
APPLICANT: Strabala, Timothy
TITLE OF INVENTION: Compositions Isolated from Plant Cells
TITLE OF INVENTION: Of their Use in the Modification of Plant Cell Signalling
FILE REFERENCE: 11000/1020
CURRENT APPLICATION NUMBER: US/09/228,986
CURRENT FILING DATE: 1999-01-12
NUMBER OF SEQ ID NOS: 130
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NOS: 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ProproAlaProVal-ThrProProThrArgAsnProProProSerValProGlyProPr 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  oSerAsnProSerArgGluGlyGlyGerProArgProProSerSerProSerProProSe 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3239
190
92
132
130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length:
Matches:
Conservative:
Mismatches:
PCT-US96-09193-1

US-09-602-472A-5

US-09-602-472A-5

US-08-55-68-1

US-07-717-331F-1

US-08-587-680A-24

US-09-228-986-1

US-09-228-986-1

US-09-228-986-1

US-09-228-986-3

US-09-228-986-3

US-08-447-185-3

US-08-447-185-3

US-09-228-986-3

US-09-228-986-3

US-09-228-986-1

US-09-228-986-1

US-09-228-986-1

US-09-228-986-1

US-09-228-986-1

US-09-228-986-1

US-09-228-986-1

US-09-228-986-1

US-09-228-986-1

US-09-228-986-1

US-09-228-986-1

US-09-228-986-1

US-09-228-986-1

US-09-228-986-1

US-09-238-986-1

US-09-238-986-1

US-09-249-585A-1

US-09-249-585A-1

US-09-620-925-1

US-09-620-925-1

US-09-620-925-1

US-09-620-925-1

US-08-910-647-1

US-08-910-647-1

US-08-910-647-1

US-08-910-647-1

US-08-910-647-1

US-08-910-647-1

US-08-910-647-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08-194-088B-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PCT-US93-04648-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-724-566A-48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-103-840A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-086-464-2 (1-647) x US-09-228-986-9 (1-3239)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JS-08-194-087-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1.88e-23
.756.00
51.93%
34.99%
21.89%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM: Eucalyptus grandis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4403765
     Percent Similarity:
Best Local Similarity:
     115.08 8 8 12.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 14.00 1
                                                                                                                                                                                                                                                                                          12.5
11.6
11.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 1
US-09-228-986-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-228-986-9
                                                                                                                                                                                                                                                                                                             430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No.:
       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1, Appli
4, Appli
13, Appli
7, Appli
3, Appli
3, Appli
11, Appli
11, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1093, Ap
                                                                                                                            ; Search time 139 Seconds (without alignments) 2583.117 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 13,
                                                                                                                                                                                                                                         647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 9,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 1,
Sequence 4,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 1
Sequence 1
Sequence 1
                                                                                                                                                                                                   US-10-086-464-2
3453
1 MSSAPSPGTGSPPSPPSNST.....REMEMGKIKRTGQGYSGPSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1: /cgn2_6/ptodata/2/ina/5A_COMB.seq:*
2: /cgn2_6/ptodata/2/ina/5B_COMB.seq:*
3: /cgn2_6/ptodata/2/ina/6A_COMB.seq:*
4: /cgn2_6/ptodata/2/ina/6B_COMB.seq:*
5: /cgn2_6/ptodata/2/ina/PCTUS_COMB.seq:*
6: /cgn2_6/ptodata/2/ina/PCTUS_COMB.seq:*
                      GenCore version 5.1.6
Copyright (c) 1993 - 2004 Compugen Ltd
                                                                                        nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-228-986-9
US-09-602-472A-1
US-09-228-986-4
US-09-228-986-13
US-09-228-986-7
US-09-228-986-7
US-09-602-472A-3
US-08-881-706-11
US-09-579-182-3
US-09-579-182-3
US-08-587-889-1
US-08-587-889-1
US-08-587-889-1
US-08-587-889-1
US-08-587-889-1
                                                                                                                                                                                                                                                                                                                                                                                                                      Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                    682709 segs, 277475446 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                            May 12, 2004, 22:28:46
                                                                                                                                                                                                                                                                                            Xgapop 10.0 , Xgapext
Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Issued Patents NA:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                            length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1593
2868
1488
2513
2432
1559
4104
4104
3097
3590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Command line parameters:
                                                                                                                                                                                                                                                                             BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query
Match 1
```

Score

Result Š.

Database :

756

744.5 740 712 703.5 67.8 667.5 604.5 602 602 800.5

g

δ

8 ጵ

ઠે

```
APPLICANT: Strabala, Timothy
APPLICANT: Strabala, Timothy
APPLICANT: Nieuwenhuizen, Niels
TITLE OF INVENTION: Compositions Isolated from Plant Cells
TITLE OF INVENTION: and Their Use in the Modification of Plant Cell Signalling
FILE REFERENCE: 11000/1020
CURRENT APPLICATION NUMBER: US/09/228,986
CURRENT FILING DATE: 1999-01-12
NUMBER OF SEQ ID NOS: 130
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -GCAGCTCCTGCAATTGGGTTC 1025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ------TTCTTTGATGTACCTGCT 1076
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                990 GCTGCCCTCTTATTT----- 1004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----GAGGAGGATCCAGAAGTTCACTTAGGCCAACTTAAG---AGGTTCTCATTACGG 1127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                167 AspGluGluAspAlaTyrTyrValProProProProProProGlyProLysAlaGlyGly 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               147 ValAlaLeuLeuValIleValThrLeuIleCysLeuLeuCysLysLysLysArgArgArg 166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 207 ValValThrSerLeuProProProLysAlaProSerProProArgGlnProProPro 226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ProAlaProValThrProProThrArgAsnProProProSerValProGlyProPro---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----SerAsnProSerArgGluGlyGlySerProArgProProSerSerProSerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 187 ProfyrglyglyglnglnglnglnfrpArgglnglnAsnAlaThrProProSerAspHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      227 ProProProProPheMetSerSerSerGlyGlySerAspTyrSerAspArgProVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LeuProProProSerProGlyLeuValLeuGlyPheSerLygSerThrPheThrTyrGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ProSerProSerSerAspGlyLeuSerThrGlyValValValGlyIleAlaIleGlyGly
588 LysLysPheArgLysMetAlaLeuGlyThiGlnGluTyrAsnAlaThrGly 604
:::||| |||::: ||| |||| |||
1333 GAAAAAAGGGACAAAGTGCACAAGGCAGCTTTGATGGGAATGCTAACGGT 1383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gcregaagcaaregaecaagegrecagagcrerrec------
                                                                                                                                                                                                                                                                                                                                                                                                              2868
182
69
133
109
                                                                                                                                                                                                                                                                                                                                                                                                                               Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-086-464-2 (1-647) x US-09-228-986-4 (1-2868)
                                                                                                                                                                                                                                                                                                                                                                                                                  ength:
                                                                                              ; Sequence 4, Application US/09228986; Patent No. 6359198; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                    7.71e-23
740.00
50.91%
36.92%
21.43%
                                                                                                                                                                                                                                                                                                                                             ; ORGANISM: Pinus radiata
US-09-228-986-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1026 GCCTGG----
                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                  Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                                                                                  LENGTH: 2868
                                                                                  -09-228-986-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                954
                                                                                                                                                                                                                                                                                                                                   TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                   ..
80
..
                                                                                                                                                                                                                                                                                                                                                                                                                                    Score:
                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ⋧
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ::: :: ||| |||:: |||| CTTGAAGGACATTATCCCATGAGGGGTTACCAGGCTCTAGCGGTTGCATGTGC 1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1096 CTTGCGAACCACACTATGATCCCAATGCGGCCTCTGGTCAAAGCAACCGGTACAACAAC 1155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ---TGGGGGGATCTAGAAGGTTCCGACAAAGGAGATTCGCCTCGAGAAACTCAAACTCCA 1272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlualaLysValAlaAspPheGlyLeuAlaLysIleAla---SerAspThrAsnThrHis 430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAACCAAAGCTTTCTGATTTCGGGCTAGCGAAGTTGGGCCCGACGGAGATAAGTCTCAT 744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LysLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThr 470 :::||||||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAlaLys 510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAlaAlaAlaCys 530
                                   |||
|CGGGGCAGCGGTCAGATTGTAGCTGTCAAACAATTGGATAGGAACGGGCTGCAGGGTAAC 384
                                                                                                                                                                                                                LeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuValTyrGluPheValProAsn 353
                                                                                                                                                                                                                                 ThrArgLeuLysIleAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCys 391
                                                                                                                                                                                                                                                                                                                                                                   565 ACAAGAATGAAGATAGCGGCTGGTGCAGCTCGAGGTTTGGAATTTCTTCACGATAAGGCT 624
                                                                                                                                                                                                                                                                                                                                                                                                                AsnProLysllelleHisArgAsplleLysAlaSerAsnIleLeulleAspPheLysPhe 411
                                                                                                                                                                                                                                                                                                                                                                                                                                 ValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGly 450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAla 490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       925 CGACCCTTATTCAAC-----GACAGAAGGAAATTTGCAACATTGGCAGACCCCAGG 975
                                                                                  Pro---SerGlyLysGluValAlaValLysGlnLeuLysValGlySerGlyGlnGlyGlu 313
                                                                                                                                                 ArgGluPheGlnAlaGluValGluIleIleSerArgValHisHisArgHisLeuValSer 333
                                                                                                                                                                              CGTGAATTTCTCGTAGAAGTTCTTATGCTCAGCCTTTTACATCATCCCAATTTGGTGAAT 444
                                                                                                                                                                                                                                                                                 354 AsnAsnLeuGluLeuHisLeuHisGly-----GluGlyArgProThrMetGluTrpSer 371
                  PheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrValHisLysGlyValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTATCCACACGGGTCATGGGAACGTATGGTTACTGTGCTCCTGAGTATGCGATGACCGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ---GluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  531 ValArgHisSerAlaArgArgArgProArgMetSerGlnIleValArgAlaLeu----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   568 ValTyrSerSerTyrGlyGlySerThrAspTyrAspSerSerGln----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----TyrAsnGluAspMet------
                                                   565
                                                                                                                                                 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                  625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    511
                                                                                  295
                                                                                                                325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1216
                  275
                                                                                                                                                                                 385
                                                                                                                                                                                                                  334
                                                                                                                                                                                                                                                                                                                                                                                                                  392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    583
                                                                                                                                                                         8 & 8
                                                                                                                                                                                                                                                                                                      6 B 6 B 6 B 6 B
```

8 8 8 8

8 8 8

8 6 8 6

8 6 8 6

ð

146 989

953

```
2.0
Ver.
                                  sapiens
                                                                                   Percent Similarity:
Best Local Similarity:
 PatentIn
SOFTWARE: Patent
SEQ ID NO 4
LENGTH: 1488
TYPE: DNA
ORGANISM: Homo 6
                                                          Alignment Scores:
Pred. No.:
Score:
                                    ; ORGANISM: Hc
US-09-579-182-4
                                                                                                                                                                                                                                                                                                       208
                                                                                                                                                                                                                                                                                                                                                                                                                                             448
                                                                                                                                                                                                                                                     260
                                                                                                                                                                                                                                                                                                                                        268
                                                                                                                                                                                                                                                                                                                                                                                                                                                              377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      748
                                                                                                                                                                                                                                                                                      280
                                                                                                                                                                                                                                                                                                                                                                                                                              359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    436
                                                                                                                                                                                                  82
                                                                                                                                                                                                                                                                     148
                                                                                                                                                                                                                                                                                                                        599
                                                                                                                                                                                                                                                                                                                                                         319
                                                                                                                                                                                                                                                                                                                                                                         328
                                                                                                                                                                                                                                                                                                                                                                                                            388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     456
                                                                                                                                                                                                                                    94
                                                                                                     Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           원
장
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                               8 à
                                                                                                                                                                                                                                                                 임
                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                 8 G
                                                                                                                                                                                                                                                                                                                                                     8 6
                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                      8 8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                            셤
                                                                                                                                                                               ò
                                                                                                                                                                                             g
                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                ò
                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2015
                                                                                                                                                                                                                                    1607
                                                                                                                                                                                                                                                                                                                                        1787
                                          1667
                                                                                                                                                                                                                                                                                                                                                                  ||||
|GATGATGTCATGTTGCTTGACTGGGTTAAAGGCCTACTA------AAAGAGAGA 1835
                                                                                                                                                                                                                    423
                                                                                                                                                                                                                                                                                                                        483
                                                                                                                                                                                                                                                     443
                                                                                                                                                                                                                                                                                      463
                                                                                                                                                                                 403
                                                                                                                                                                                                                                                                                                                                                                                                                                                               SerGlnIleValArgAlaLeuGluGlyAsn-ValSerLeuSerAspLeuAsnGluGlyMe 561
                                                                                                              LeuValTyrGluPheValProAsnAsnAsnLeuGlu----LeuHisLeuHisGlyGlu 363
                  CTCTCCTACTTGCATGATCATTGTGATCCTAAGATTATTCACCGGGATGTCAAGGCTGCT
                                                                                                                                                                                                                             424 AlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAla
                                                                                                                                                                                                                                                               ValieuleuGluleulleThrGlyArgArgProValAspAlaAsnAsnValTyrValAsp
                                                                                                                                                                                                                                                                                                                                  :::::::::: ||||||:::|||
1896 CAACTTATTCAAGTTACTTTGTACACAAGGGTCACCAATGGATAGACCAAAGATG
         GlyTyrValHisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLys
                                                                           ValHisHisArgHisLosAralSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeu
                                                                                                                                                GlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySerAlaLysGly
                                                                                                                                                                                 LeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAspIleLysAlaSer
                                                                                                                                                                                                                    AsnileLeulleAspPheLysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIle
                                                                                                                                                                                                                                                                                      | ProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPheSerPheGlyVal
                                                                                                                                                                                                                                                                                                                                                         AspSer-----LeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGly
                                                                                                                                                                                                                                                                                                                                                                                           AspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMetAla
                                                                                                                                                                                                                                                                                                                                                                                                                              Argmet Val Ala Cys Ala Ala Ala Cys Val Arg His Ser Ala Arg Arg Pro Arg Met
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               rcreaagregradgargrrcgaagggarggcrragcrgagagarggaggaarggcaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ENCODING HUMAN KINASE AND AND USES THEREFOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tArgProGlyGlnSerAsnValTyrSerSerTyrGly 573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 4, Application US/09579182
Patent No. 650628
GENERAL INFORMATION:
TITLE OF INVENTION: WCLEIC ACID MOLECULES ENC
TITLE OF INVENTION: PHOSPHATASE HOMOLOGUES AND;
FILE REFERENCE: MNI-161
CURRENT PELLING DATE: 2000-05-25
WUMBER OF SEQ ID NOS: 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 4
US-09-579-182-4
                                                                                             1308
                                                                                                                                                                1428
                                                                                                                                                                                                                                                                                                       1668
                                                                                                                                                                                                                                                                                                                                         1728
                                                                                                                                                                                                                                                                                                                                                                           1788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1956
                           1188
                                            307
                                                            1248
                                                                                                                                1368
                                                                                                                                                364
                                                                                                                                                                                  384
                                                                                                                                                                                                   1488
                                                                                                                                                                                                                    404
                                                                                                                                                                                                                                     1548
                                                                                                                                                                                                                                                                      8091
                                                                                                                                                                                                                                                                                       444
                                                                                                                                                                                                                                                                                                                         464
                                                                                                                                                                                                                                                                                                                                                          484
                                                                                                                                                                                                                                                                                                                                                                                           502
                                                                                                                                                                                                                                                                                                                                                                                                                              522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 561
                                                                                                              346
                                                                                        엄
                                                                                                             8 6 8 6
                                                                                                                                                                               8 8 8
                                                                                                                                                                                                                             8 8 8
                                                                                                                                                                                                                                                                                                   8 6 8
                                                                                                                                                                                                                                                                                                                                                     충
음
                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                       엄
                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                      ઠ
                                                        8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
```

```
318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     396
                                                                                                                                219
                                                                                                                                                                                      239
                                                                                                                                                                                                                                               259
                                                                                                                                                                                                                                                                                                                                 207
                                                                                                                                                                                                                                                                                                                                                                                        267
                                                                                                                                                                                                                                                                                                                                                                                                                                                 327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SerAspValPheSerPheGlyValValLeuLeuGluLeuIleThrGlyArgArgProVal 475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  93
                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                               GCACAAACCTTTACTTTCCGAGAGTTAGCTGCCGCCACTAAAAACTTTCGACCGGAATGT
                                                                                                                                                                                                                                                                                                                                                                               CTTCTTGGAGAGAGGAGGTTTCGGACGTGTTTACAAAGGTCGTCTAGAGACCACAGGACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HisArgAspIleLysAlaSerAsnIleLeLuIleAspPheLysPheGluAlaLysValAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             240 AppTyrSerAspArgProValleuProProProSerProGlyLeuValLeuGlyPheSer
                                                                                                                                                                                                                                                                                                    LeuleuGlyGlnGlyGlyPheGlyTyrValHisLysGlyValLeu---ProSerGlyLys
                                                                                                                                                                                                                                                                                                                                                                                                                     GluValAlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GluValGluIleIleSerArgValHisHisArgHisLeuValSerLeuValGlyTyrCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HisLeuHisGly-----GluGlyArgProThrMetGluTrpSerThrArgLeuLysIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCGCCAGGAGCAGCAAAGGGACTGGAGTATCTGCATGATAAAGCGAATCCGCCTGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AspPheGlyLeuAlaLysIleAlaSer---AspThrAsnThrHisValSerThrArgVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLys
                                                                                                                                ---ProProLysAlaProSer
                                                                                                                                               220 ProProArgGlnProProProProProProProProPheMetSerSerGlyGlySer
                                                                                                                                                                                                                                                                          -----GAACAGAAGAAGGAGCTAACTGCTCCAAAAGAAGGGCCTACTGCGATATTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATAGTAGCTGTTAAACAGCTTGATCGAAACGGTCTACAAGGAAACAGAGAGTTTCTTGTA
1488
178
73
160
62
 Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                    US-10-086-464-2 (1-647) x US-09-579-182-4 (1-1488)
                                                                                                                                                                                                         -----CGACGAGGTCCT------
                                                                                                                                205 AspHisValValThrSerLeuProPro-
6.04e-22
712.00
53.07%
37.63%
```

134 923

유

ર્જ

ઠે

ઠે

```
||||||||||||||||:::
CTTGTGTATGAATATTTCGACAATGGATCACTCTATGACGTATTGCACATGGCAGATGAG 1559
                                                                                                                                                                                                                                                                         -----GAAGAAAACTA 1043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerThrGlyValValValGlyIleAlaIleGlyGlyValAlaLeuLeuValIleValThr 154
                                                                                                                                                                                     LeuileCysLeuleuCysLysLysLysArgArgArgAspGluGluAspAlaTyrTyrVal 174
                                                                                                                                                                                                                                                                                                                                                                                                                     MetSerSerSerGly-----GlySerAspTyrSerAspArgProValLeu 247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          364 GlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySerAlaLysGly 383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AsnileLeulleAspPheLysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIle 423
                                                                                                                                                288 TyrValHisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1560 ACTACTAGAAATTTGTCTTGGAACATTCGTGTAAAGATTGCGCTGGGTTCAGCTCGAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ValProGlyProProSerAsnProSerArgGluGlyGlySerProArgProProSerSer
                                         ----AATCGGCCACCCAAGTCC
                                                                                                  rcaaargregrecerrearcageregericaaagegreggaacageaaraagaaarerere
                                                                                                                                                                                                                                             ProProProProProGlyProLysAlaGlyGlyProTyrGlyGlyGlnGlnGlnGlnGln
                                                                                                                                                                                                                                                                                                    TrpArgGlnGlnAsnAlaThrPro-----ProSerAspHisValValThrSerLeuPro
                                                                                                                                                                                                                                                                                                                                                                                                                                               1164 CGCAACAAGTCTACAGGGACAAAGGCTTCGGAAGTATTTTTCAAGTAAGAGGACTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              248 ProProProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     268 LeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlyGlyPheGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gly-----SerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ValhishishzghisLeuValSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuValTyrGluPheValProAsnAsnAsnLeu-----GluLeuHisLeuHisGlyGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAspIleLysAlaSer
                                                                                                                                                                                                                                                                                                                                                              ProProProLysAlaProSerProProArgGlnProProProProProProProPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            984 Traggagttattriratatgcacgtaagtcrccragaagagagggar--
                                                                       ProSer----ProProSerProSerSerAspGly-
                                            -----CCACCTTCTAAC
                                                                                                                                                                                       155
                 104
                                                                                                                              135
                                                                                                                                                           924
                                                                                                                                                                                                                                                                          1032
                                                                                                                                                                                                                                                                                                                                                                                          1104
                                                                                                                                                                                                                                                                                                                                                                                                                       233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1734
                                            834
                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                         임
                                     g
                                                                      ò
                                                                                          g
                                                                                                                     8
                                                                                                                                                     유
                                                                                                                                                                                                          g
                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ⋧
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               유
                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ठे
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ∂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Strabala, Timothy
APPLICANT: Strabala, Timothy
APPLICANT: Nieuwenhuizen, Niels
TITLE OF INVENTION: Compositions Isolated from Plant Cells
TITLE OF INVENTION: and Their Use in the Modification of Plant Cell Signalling
FILE REFERENCE: 11000/1020
CURRENT APPLICATION NUMBER: US/09/228,986
CURRENT FILING DATE: 1999-01-12
NUMBER OF SEQ ID NOS: 130
SOFTWARE: PARTEEQ for Windows Version 3.0
                                                                                                                                                                                                                                                   1099 AGAACAAGGGATGATCGGAGGAGGCTTGGGAGATGGGAGTAGCTTGGATAGTCCTGCAGAG 1158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1276 TCAGGTAGAAAATGGGGATTA------AGCGATTTGGAAGGGCAAGAATCACAG 1323
                                                                                                                 535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -- 833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Thr Thr ProGlySer ProProAla ProValThr ProProThr ArgAsn ProProProSer 103
                                                                                                                                                                                          GCGACAAGACCACTGATTGGCGACGTGGTGACAGCTCTAACATACTTAGCTTCGCAAACG
                                                                                                                                                                                                                                                                                                                                                                                                     AlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnProThrSer----
AspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsn
                 AspargGluGluMetAlaArgMetValAlaCysAlaAlaAlaCysValArgHisSerAla
                                                                                                                                 ArgArgArgProArgMetSerGlnIleValArgAlaLeuGluGlyAsnValSerLeuSer
                                                                                                                                                                                                                               -----GluGlyMetArgProGlyGlnSerAsnValTyr---
                                                                                                                                                                                                                                                                                        -----SerSerTyrGlyGlySerThrAspTyrAsp------
                                                                                                                                                                                                                                                                                                                                                 ------SerSerGlnTyrAsnGluAspMetLysLysPheArgLysMet
                                                                                                                                                                                                                                                                                                                                                                           1159 ACTCGGAGTCGGTTAGGGTCACCACCCACTCACAAGAACTCTCCTGATTACAGAAGAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----AspTyrGlyLeuTyrProSerGlySerSerGluGlyGlnThrThrArg
                                                        ArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1324 AGAGGGAGCCCGGCGAGTGTTGGGAGATCATCGAGAGGC 1362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2513
178
81
179
85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      629 GluMetGluMetGlyLysIleLysArgThrGlyGlnGly 641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              195 ACTGGTCCTCCTCCTCCCCCACCATATACTCCACCT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      x US-09-228-986-13 (1-2513)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 13, Application US/09228986; Patent No. 6359198; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2.21e-21
703.50
49.52%
34.03%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: DNA ORGANISM: Pinus radiata
                                                                                                                                                                                                                               ---AspLeuAsn-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-086-464-2 (1-647)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ent Similarity:
Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 5
US-09-228-986-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LENGTH: 2513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-228-986-13
                                                                                                                                                                                                                               556
                                                                                                                                                                                                                                                                                        570
                             808
                                                        496
                                                                                                                 516
                                                                                                                                             919
                                                                                                                                                                                                   979
                                                                                     865
                                                                                                                                                                                                                                                                                                                                                 580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent
                                                        8 8 8
                                                                                                                                   g
                                                                                                                                                                     8 8 8
                                                                                                                                                                                                                                                    8 & 8
                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                             8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
```

1319

307

287

1259

1439

1499

345

363

1619

1679

ठे

1642

470

450

430

1801

486

1978

266

1921

546

2038

ò 셤 ò g ò

ద

õ

ò gg ò 8 % 8

d

ò

g ઠે 엄

õ

```
1283 cgarrigranggarrrigcacaaccrccagagagggcrricrggrcrarcccaacargcca 1342
                                                                                                                                                                                                                                                                                                                              |||||||
1802 GCTGATAAAGATCTTAAGGGCAATTTTGATAGAGTTGAGCTAGAAGAGAGATGGTTCAGGTT 1861
                                                                                                                                                                                                                                                CysAsnProLysilelleHisArgAspIleLysAlaSerAsnIleLeuIleAspPheLys 410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               487 ValAspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeu 506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      507 AlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCys 526
            GluargGluPheGlnAlaGluValGluIleIleSerArgValHisHisArgHisLeuVal 332
                                                                                                                                                      AATGGAAGTGTGGCCTCTTGTCTTAGAGATCATATTAATGGAAAGCTTGCCCTGGACTGG
                                                                                                                                                                                                                                                                                                                                                                     431 ValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGly
                                                                                                                                                                                                                                                                                                                                                                                    AsnAsnAsnLeuGlu-----LeuHisLeuHisGlyGluGlyArgProThrMetGluTrp
                                                                                                                                                                                                                                                                   PheGluAlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThrAsnThrHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyArgArgProValAsp-----AlaAsnAsnValTyrValAspAspSerLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   547 AlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSer
                                                                     SerieuvalGlyTyrCysIleAlaGlyAlaLysArgLeuLeuvalTyrGluPhevalPro
                                                                                                                                                                                                                                                                                                                                                                                                                              451 LysLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  527 AlaAlaAlaCysValArgHisSerAlaArgArgArgProArgMetSerGlnIleValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ------SerTyrGlyGlySerThrAspTyrAspSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Genea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 3, Application US/09602472A
Patent No. 6608240
GENERAL INFORMATION:
APPLICANT: Bidney, Dennis L.
APPLICANT: II, Guihua
TITLE OF INVENTION: Sunflower Disease Resistance (FILE REPRENCE: 35718/200630
CURRENT APPLICATION NUMBER: US/09/602,472A
CURRENT FILING DATE: 2000-06-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        567 AsnValTyrSer----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2039 TCT 2041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ser 581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 7
US-09-602-472A-3
                                                                                                                                                                                                                                                                                                              411
                                         1223
                                                                                                                                                               1343
                                                                                                                                                                                                                        1403
                                                                                                                                                                                                                                                                                                                                                                                                    1583
               313
                                                                        333
                                                                                                                                                                                           371
                                                                                                                                                                                                                                                     391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         471
                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                g
                                                              ò
                                                                                          ያ ያ
                                                                                                                                                                                         Š
                                                                                                                                                                                                               8 &
                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                              중 음
                                                                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Strabala, Timothy
APPLICANT: Nieuwenhuizen, Niels
APPLICANT: Nieuwenhuizen, Niels
TITLE OF INVENTION: Compositions Isolated from Plant Cells
TITLE OF INVENTION: and Their Use in the Modification of Plant Cell Signalling
FILE REFERENCE: 11000/1020
CURRENT APPLICATION NUMBER: US/09/228,986
CURRENT FILING DATE: 1999-01-12
NUMBER OF SEQ ID NOS: 130
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 7.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1162
                                                                         ::: |||:::|||
-----ACTGCAGACCACGATCCT 2168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----ĠATATT 1955
                                                                                                                                                                                                                                       AlaArgMetValAlaCysAlaAlaAlaCysValArgHisSerAlaArgArgArgProArg 540
                                                                                                                                                                                                                                                                                              MetSerGlnIleValArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGly 560
                                                                                                                                                                                                                                                                                                                                                         MetArgProGlyGlnSerAsnValTyrSerSerTyrGlyGlySerThrAspTyrAspSer 580
                                                        ValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnValTyrValAsp
                                                                                                                                                                                                 GATGCATTGGGAAAGATGGTTGATCCAGCTTTGAAGGGAAGTTATCCTGCAAAATCTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AATTTTAGTAGCAAGAATATTTTAGCAGTAGGAGCATATGGAATTGTCTATAAAGGATTC
ProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPheSerPheGlyVal
                   484 AspSerieuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPhe
                                                                                                                                                                             GluGlyLeuAla-----AspAlaLysMetAsnAsnGlyTyrAspArgGluGluMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuValleuGlyPheSerLysSerThrPheThrTyrGluGluLeuAlaArgAlaThrAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrValHisLysGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LeuProSerGlyLysGluValAlaValLysGlnLeuLysValGlySer---GlyGlnGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2432
147
68
104
22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                     US-10-086-464-2 (1-647) x US-09-228-986-7 (1-2432)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; Sequence 7, Application US/09228986; Patent No. 6359198; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2.44e-20
678.00
63.05%
43.11%
19.64%
                                                                                                                                                                                                                                                                                                                                                                                      ATGACAGGAGATGAA--
                                                                                                                                                                                                                                                                                                                                                                                                                                    2169 GCAGATTAT 2177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM: Pinus radiata
                                                                                                                                                                                                                                                                                                                                                                                                                   581 SerGlnTyr 583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment Scores:
Pred. No.:
Scoret
Scoret
Percent Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 6
US-09-228-986-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-228-986-7
                                                                                                                                                                                                                                                                                                                           2076
                                                                                                                                                                                                                                                                                                                                                                                      2136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1103
                             1794
                                                          464
                                                                                       1854
                                                                                                                                                                              504
                                                                                                                                                                                                          1956
                                                                                                                                                                                                                                       521
                                                                                                                                                                                                                                                                                                 541
                                                                                                                                                                                                                                                                                                                                                          561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE:
```

491

471

```
||||||| ||| :::::
989 ACCTTTGTTCAAC-----GACAGAAGGAAATTCACATCGTTGGTGGACCCACGGTT 1039
                                                                                                                                                                                                    TGCA------AACCAGGGTACGATCCGAC-CACAGCTCCCAGCTTCATAA 1203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2350 ccaccioscraagricingaacaarciciosice---ronostrarccientecesors 2406
                                                                                              511 tAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAlaAlaAlaCysVa 531
                                                                                                                                                                                                                                                                                          551 nValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSer------As 567
  TTCCACACGCGTGATGCGTACATACCGTTACTGTGCTCCTGAGTATGCCCATGACTGGTCA 868
                                                                                                                                                                                                                                        531 lArgHisSerAlaArgArgArgProArgMetSerGlnIleValArgAlaLeuGluGlyAs 551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ProPro-----SerAsnProSerArgGluGlyGlySerProArgProProSer 122
                                                                                                                                                                                                                                                                                                                                                                  567 nValTyrSerSerTyrGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAsp 586
                                                                                                                                 gProfeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAlaLysMe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2407 GATCCTTCA-----AATGCAGACGGTTATGCTCATCATCAGAGATCTCATGGA
                                                     Gritaacegreaarcegargreacagerringereretritringagecritatiacege
                                                                               471 yArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAlaAr
                           SLEUThIGJULYSSETABPValPheSerPheGlyValValLeuLeuGluLeuIleThrGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4104
161
84
148
127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SerProSerProProSerProSerSerAspGlyLeu---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-086-464-2 (1-647) x US-08-881-706-1 (1-4104)
                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 1, Application US/088B1706
Patent No. 6245969
GENERAL INFORMATION:
GENERAL INFORMATION:
TITLE OF INVENTION: Receptor Kinase BINI
FILE REFERENCE: 07251/022001
CURRENT APPLICATION NUMBER: US/08/881,706
CURRENT FILING DATE: 1997-06-24
NUMBER OF SEQ ID NOS: 2
SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4.4e-17
604.50
47.21%
31.02%
17.51%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; NAME/KEY: CDS
; LOCATION: (97)..(3687)
US-08-881-706-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: DNA
ORGANISM: Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 4104
                                                                                                                                                                                                                                                                                                                                                                                                               US-08-881-706-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  123
  309
                            451
                                                     698
                                                                                                                                  491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
DB:
                           ò
                                                g
                                                                      ঠ
                                                                                                  셤
                                                                                                                                 à
                                                                                                                                                           g
                                                                                                                                                                                   à
                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -ArgLeuLys1leAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCysAs 392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      630 CAGGATGAAGATAAGCGGCTGT-GCAGCGCAAGGGGTTGGAGTTTCTTCATGATAAAGCTAA 688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SerProProArgGlnProProProProProProProProPheMetSerSerGlyGly 238
                                                                                                                                                                                                                                                                                                                                                                                     LeuGlyPheSerLysSerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPhe 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     393 AGTAGTGGTCAAGTTGTTGTTAAACAGCTGGATAGAAATGGACTCCAAGGTAACCGT 452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               335 ValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuValTyrGluPheValProAsnAsn 354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AsnLeuGluLeuHisLeuHisGly-----GluGlyArgProThrMetGluTrpSerThr 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             uAlaLysValAlaAspPheGlyLeuAlaLysIleAla---SerAspThrAsnThrHisVa 431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            276 SerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrValHisLysGlyValLeu--- 294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          295 ProSerGlyLysGluValAlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArg 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlupheGlnAlaGluValGluIleIleSerArgValHisHisArgHisLeuValSerLeu 334
                                                                                                                                                                                                                                                                                                                                                           339 SerAspTyrSerAspArgProValLeuProProProSerProGlyLeuVal------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nProlysllelleHisArgAspIleLysAlaSerAsnIleLeuIleAspPheLysPheGl
                                                                                                                                                                                                                                                                                                                                  131 TCACCAAAAGTCGGCCATGAAGTCCACCCAT-CCGCCCCTT----
                                                                                                                                                                                   1559
165
65
117
57
                                                                                                                                                                                   Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                               US-10-086-464-2 (1-647) x US-09-602-472A-3 (1-1559)
PRIOR APPLICATION NUMBER: 60/140,876
PRIOR FILING DATE: 1999-06-24
NUMBER OF SEQ ID NOS: 64
SOFTWARE: FastSEQ for Windows Version
SEQ ID NO 3
LENGTH: 1559
                                                                                                                                                                                   4.39e-20
667.50
57.50%
41.25%
                                                                               TYPE: DNA ORGANISM: Helianthus annuus
                                                                                                                   ; NAME/KEY: CDS
; LOCATION: (81)...(1319)
US-09-602-472A-3
                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                          Ignment Scores:
                                                                                                                                                                                                                                                                                                         219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              315
                                                                                                                                                                                                                                                                                                                                                                                                                255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        749
                                                                                                                                                                                                                                                                                                                                                                                      172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  431
                                                                                                                                                                        Alignment S
Pred. No.:
                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                 8 6 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6 6 6 6 6
                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                            ሯ
                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8 6 8 6 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8 B
```

2454

8 8 8 8

음 숙 음

8 6 8 6

品 名 品 名

```
à
                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                            ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ठे
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACTGGTAGATATCCGGTAGACTATGCTCGTCCACCACCCGAGGTACATTTGGTGGAGTGG 1023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1024 CTGAAGATGATGCTC-----CAACAAAGACGATCAGAAGAAGAAGTGGTTGATCCA 1071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |||||||
TGTGTTGATCCAATGTCTGAGAAAAAACGGAGGATGAGCCAAGTTGCACGTATGCTTGAA 1191
 253
                                                                              HisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysValGlySer 309
                                                                                                                                                                                                     GlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHisHisArg 329
                                                                                                                                                                                                                                                                                                        HisLeuValSerLeuValGlyTyrCyslleAlaGlyAlaLyBArgLeuLeuValTyrGlu 349
                                                                                                                                                                                                                                                                                                                                                                       PheValProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGlu 369
                                                                                                                                                                                                                                                                                                                                                                                                     705
                                                                                                                                                                                                                                                                                                                                                                                                                                                     430 HisValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSer 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CysValArgHisSerAlaArgArgArgProArgMetSerGlnIleValArgAlaLeuGlu 549
                           AAAGACGGATCGAGCGTATCTTCTGCTAATCCTTTGACAGCTCCATCTCCTTTGTCTGGT 423
                                                           LeuVal-------LeuGlyPheSerLysSerThrPheThrTyrGluGluLeuAla 269
                                                                                                                      270 ArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrVal 289
                                                                                                                                                                                                                                                                           GGACAAGCTGATAAAGACTTCAGAGTTGAAGTTGAAGCTATAGGTCACGTTCGACATAAA 660
                                                                                                                                                                                                                                                                                                                                                                                                                                    370 TrpSerThrArgLeuLys1leAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGlu 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               390 AspCysAsnProLysIleIleHisArgAspIleLysAlaSerAsnIleLeuIleAspPhe 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCGATTGAGCCAAAAGTGGTGCACAGAGACATTAAGTCTAGTAACATTCTGATGATGA 783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThrAsnThr 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlyLysLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGluLeuIle 469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ThrGlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrp 489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAla 509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAlaAlaAla 529
SerGlyGlySerAspTyrSerAspArgProValLeuProProProSerPro-----Gly
                                                                                                                                         350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1132
38
                            364
                                                           254
                                                                                         124
                                                                                                                                                     481
                                                                                                                                                                                                                541
                                                                                                                                                                                                                                              310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          510
                                                                                                                                                                                  290
                                                                                                                                                                                                                                                                             601
                                                                                                                                                                                                                                                                                                          330
                                                                                                                                                                                                                                                                                                                                                                                                     705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     530
```

8 6 8 6

8 8 8

Sequence 11, Application US/09228986
Patent No. 6359198
GENERAL INFORMATION:
GENERAL INFORMATION:
THILE OF INVENTION: Compositions Isolated from Plant Cells
TITLE OF INVENTION: and Their Use in the Modification of Plant Cell Signalling

US-09-228-986-11

용

요

કે

ઠે

qq

8 6 8 6

```
1582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ||| :::||| :::||| :::
TCTCCACAACCGCGGC-GGTGATGCATCATCTAGTCCTTCAATTGAGGCACCGCAAGTT 1760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             :::||||||||||:::|||
821 GTCGGAGGAGTATCACTAGCTATTTTACTCATCCCGCTCTTCGTATTCATGTACAGAAGG 1880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   :::|||:::|||:::||
TCCTACAAAGAGATCAAAACAGCTACAAACAACTTTAAAGAA-----GTCATTGGTCAT 2009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1761 ACAATAGTTCCCGAGAGAACAAAGGGGGACATAATCGTTTAGCCATTATACTCGGAGCA 1820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ---ATGTCATATACGGAA 1910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  144 IleGlyGlyValAlaLeuLeuValIleValThrLeuIleCysLeuLeuCysLysLysLys 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AlaGlyGlyProTyrGlyGlyGlnGlnGlnGlnTrpArgGlnGlnAsnAlaThrProPro 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       264 ThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGln 283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLysGluValAlaValLys 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SerAspHisValThrSerLeuProProProProLysAlaProSerProProArgGln 223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            95
                                                                                                                                                                                                                                                                                                                                                                                                                               16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 :::
AGAGCTGAAAGACCTTCACCTACTGGACTTGGAGAATAACCTGCTACAG-GTACCTTAC
                                                                                                                                                                                                                                                                                                                                                                                                                               ----LeuPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ccrecaagricicaaaacaacaacagciragacgaggagriciccgacggcriggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ---ProThrArgAsnProProProSerValProGlyProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ------ProSerProSerSerAspGlyLeuSerThrGlyValValGlyIleAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ArgargaspGluGluAspAlaTyrTyrValProProProProProGlyProLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlnProSerProProAlaProThrThrProGlySerProProAlaProValThrPro---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAGATTCCTTGAACAGACAGAGCTTGGAGGTCAGAACCTCAGGAAACTTGTGTCTTTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SerAsnProSerArgGluGlyGlySerProArgProProSerSerProSerPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ProProProProProProProPheMetSerSerSerGlyGlySerAspTyrSerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ArgProValLeuProProSerProGlyLeuValLeuGlyPheSerLysSerThrPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1881 AGAGGAAGAACTGAA-----
                                                                                                                                                                                                                                            3097
173
80
172
126
13
                                                                                                                                                                                                                                              Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                       US-10-086-464-2 (1-647) x US-09-228-986-11 (1-3097)
FILE REFERENCE: 11000/1020
CURRENT APPLICATION NUMBER: US/09/228,986
CURRENT FILLIGATION NUMBER: US/09/228,986
CURRENT FILLIG DATE: 1999-01-12
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 11
LENGTH: 3097
TYPE: DNA
CORANISM: Eucalyptus grandis
                                                                                                                                                                                                                                                                                                                                                                                                                               ProSerThrProGlySerProProPro----
                                                                                                                                                                                                                                         4.95e-17
600.50
46.08%
31.51%
17.39%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                             Alignment Scores:
                                                                                                                                                                                     US-09-228-986-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              244
                                                                                                                                                                                                                                                                                                                                                                                                                               99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      127
                                                                                                                                                                                                                                                                                                                           Query Match:
DB:
                                                                                                                                                                                                                                                  Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ठे
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      용
```

g ò g ò a 8 엄 ò g ò 엄 ò g ò

8

```
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-086-464-2 (1-647) x US-08-587-889-1 (1-3590)
4 Embarcadero Center, Suite 3400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20 rThrThrThrProProProAlaSerAla----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     32 oThrThrProSerSerProPro-----
                                                                                                         COMPUTER READABLE FORM:
WEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3.48e-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LENGTH: 3590 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            581.50
38.68%
27.37%
16.84%
                       San Francisco
California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                   94111-4187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity:
                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY:
                                                                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-587-889-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2825
                            2070 GTGCGGTTTGATAAAACCCAACTTGGTGCAGATTCTTTCATAAATGAGGTTCGTCTCTTA 2129
                                                                                                                                                                                                           23.10 AAAGGACTGGACTATCTACATAATGGAAGCAATCCTCGAATCATACACGAGAGACATCATCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2370 TGCAGTAATATACTATTGGACAAGGAGATGAATGCAAGACTTTGCGACTTTGGGGTCTCT 2429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2487 GGTTACCTCGACCCTGAATATTACTCCACCCAACAACATACAGAGAAAAGGGACGTCTAT 2546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGCTTTGGAGTTGTGCTTTTGGAGCTCATCTGTGGACGAGAGCCGTTAAATCATTCAGGA 2606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2712 ATGAGGAAAGTGGCAAAAATCGCTGTGAGAGTGTAGAAGAGGGATGCATCACTAAGGCCA 2771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2655 GCAGGIGCAITIGAG---ATAGTGGÁTGAGAGTTTAGGGGGAAGTTTCGÁTGTGGÁAAGC 2711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyTyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPhe 459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    480 ValTyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGlu 499
                                                                                        SerArgValHisHisArgHisLeuValSerLeuValGlyTyrCysIleAlaGlyAlaLys 343
                                                                                                                                                                                 344 ArgleuleuvalTyrGluPheValProAsnAsnAsnLeuGluLeuHisLeuHisGlyGlu 363
                                                                                                                                                                                                                                                                            364 Gly-----ArgProThrMetGluTrpSerThrArgLeuLys1leAlaLeuGlySerAla 381
                                                                                                                                                                                                                                                                                                                                                                    LysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAspIleLys 401
                                                                                                                                                                                                                                                                                                                                                                                                                                                               402 AlaSerAsnIleLeuIleAspPheLysPheGluAlaLysValAlaAspPheGlyLeuAla 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Lys-----IleAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPhe 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerPheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsn 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            500 GlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGlu 519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             540 ArgMetSerGinileValArgAlaLeuGluGly-----AsnValSerLeuSerAspLeu 557
304 GlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIle 323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8607 ACTCCAGATTCCTTCAATTTGGTTTTATGGGCAAAGCCCTACTTG------CAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2772 ACCATTGCACAGATACTGTGCTCAAAGAGGCTTACAGCATTCAGCTCTCT-----
                                                                                                                     2130 TCACAAGTCCGCCATCAGAACCTTGTCAGTCTGGAAGGATTTTGTTATGAGTCGCAGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MetAlaArgMetValAlaCysAlaAlaAlaCysValArgHisSerAlaArgArgArgPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        558 AsnGluGlyMetArgProGlyGlnSerAsnValTyrSerSerTyrGlyGlySerThrAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 1, Application US/08587889
Patent No. 5654397
GENERAL INFORMATION:
APPLICANT: CROSTON, Glenn E.
APPLICANT: GCEDDEL, David V.
TITLE OF INVENTION: INTERLEUKIN-1 RECEPTOR-ASSOCIATED
TITLE OF INVENTION: PROTEIN KINASE AND BINDING ASSAY
NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
ADDRESSEE: FLEHR, HOHBACH, TEST, ALBRITTON & HERBERT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2853 TGAATCTACTCGTATTACAACCAAGAC 2879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   578 TyrAspSerSerGlnTyrAsnGluAsp 586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-587-889-1
                                                                                        324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     520
                                                                                                                                                                                                                                                                                                                                                                      382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        422
```

g

ò g ò 요

g

ò 셤 ઠે

ò

g

ઠે

```
80 ATGGCCGGGGGCCGGGGCCCGGGGGCCCCCGGCGCCCATCTTGTAC 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            88 rProProAlaProValThrProProThrArgAsnProProProSerValProGlyProPr 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          oSerAsnProSerArgGluGlyGlySerProArgProProSerSerProSerProProSe 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            140 GAGGIGCCGCCCTGGGTCATGTGCCGCTTCTACAAAGTGATGGACGCCCTGGAGCCCCGC 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       320 GCCGACCTCGTGCACATCCTCACGCACCTGCAGCTGCTCCGTGCGCGGGACATCATCACA 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          200 cachegreccachriccic cich carcerece cacacaca cancarecand
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 260 cecrócescasecacescas de confectos de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contra de contr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               58 aProProProSerProPro------ThrProSerTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     380 GCCTGGCACCCTCCCGCCTTCCGTCCCCAGGCACCACTGCCCCGA-----GG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 MetSerSerAlaProSerPro-GlyThrGlySerProProSerProProSerAsnSerTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 40 ----ProProSerThrIleProThrSerProProSerSerArgSerThrProSerAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             68 rProGlySerProProLeuProGlnProSerProProAlaProThrThrProGlySe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3590
208
239
229
28
CURRENT SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/587,889
FILING DATE:
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Osman Ph.D., Richard Aron
REGISTRATION NUMBER: A-60916
TELEPHONE: (415) 494-871
TELEPHONE: (415) 494-871
TELEPHONE: (415) 494-871
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENTH: 3590 base pairs
```

259

28

39

20

32

319

68

430

88

```
------GAGGAGGCTGAGGAGCTGGAGTGGCTTTGAGAAGCACCCAGAG 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gArgProVal-----AspAlaAsnAsnValTyrValAspAspSerLeuValAspTr 489
                                                                                                                                                                                                                                  AGAGAGCTCAGTGTCCCTCCTGCAGGAGCCCGCCCTCTCCGTTTTGCTGGCCCCTCTG
                                                                                                                                                                                                                                                                                                                                                                                        GAAGAACGCTGGACTGGACTGCAGTGAAGCAGAGCTTCCTGACCAAGGTGGAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTTCTACTGCCTGGTGTACGGCTTCCTGCCCAACGGCTCCCTGGAGGACCGTCTCCACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ccagacccaggccrgcccaccrcrcrggccrcagcgacrggacarccrrcrgggrac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   uThrGluLysSerAspValPheSerPheGlyValValLeuLeuGluLeulleThrGlyAr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          188 rGlyGlyGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAspHisValVa
                                                                                                                                                                                                                                                                                 sValGlySerGly------GlnGlyGluArgGluPheGlnAlaGluValGluIl
                                                                                                                                                                                                                                                                                                                                                                                                                          elleSerArgValHisHisArgHisLeuValSerLeuValGlyTyrCysIleAlaGlyAl
                                                                                                                                                                                                                                                                                                                                                                                                                                         :::||||||| :::|||||||| 865 GCTTTGCTGGCTTTTGCTGGCTCTGAGAACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              342 aLysArgLeuLeuValTyrGluPheValProAsnAsnAsnLeuGlu-----LeuHisLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                360 uHisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        uAlaLysIle------AlaSerAspThrAsnThrHisValSerThrArg--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----cregrrccaagcccrecrrccrrgrescriccaccic
                                                                                                                                                              oProProProPheMetSerSerSerGlyGlySerAspTyrSerAspArgProValLeuPr
                                                                                                                                                                                                                oProProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGlu----
                                                                                                                                                                                                                                                                    -GluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPh
                                                                                                                                                                                                                                                                                                                     eGlyTyrValHisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ralaLysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAspIl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----ValMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGlyLysLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                pAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAl
                                                                                                           208 lThrSerLeuProProProLysAlaProSerProProArgGlnProProProProProProP
                    ---GGGCCTGAGCTCGGC
                                                                                                                                                                                        Arcrecaeceerrerreraeceaege-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     509
                                542
                                                                                                                                      557
                                                                                                                                                               228
                                                                                                                                                                                         595
                                                                                                                                                                                                                   248
                                                                                                                                                                                                                                           628
                                                                                                                                                                                                                                                                     267
                                                                                                                                                                                                                                                                                                                       286
                                                                                                                                                                                                                                                                                                                                                748
                                                                                                                                                                                                                                                                                                                                                                         306
                                                                                                                                                                                                                                                                                                                                                                                                   805
                                                                                                                                                                                                                                                                                                                                                                                                                            322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             435
                                                                                    556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       જ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                              유
                                                                                                            ò
                                                                                                                                ď
                                                                                                                                                       à
                                                                                                                                                                                    셤
                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                      ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAGGTGCCGCCTGGGTCATGTGCCGCTTCTACAAAGTGATGGACGCCCTGGAGCCCCGC 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                oSerAsnProSerArgGluGlyGlySerProArgProProSerSerProSerProProSe 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             rProSerSerAspGlyLeuSerThrGlyValValValGlyIleAlaIleGlyGlyValAl 148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCGACCTCGTGCACCTCCTCCTGCACCTGCTCCGTGCGGGGACATCATCACA 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          rProProAlaProValThrProProThrArgAsnProProProSerValProGlyProPr 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       88
                                                                                                                                                                                                                                                                                                                                                                                                                                          20
                                                                                                                                                                                                                                                                                                                                                                                                                                                        rProGlySerProProLeuProGlnProSerProProAlaProThrThrProGlySe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       380 GCCTGGCACCCTCCGCCTTCCGTCCCCAGGCACTGCCCCGA------GG
                                                                                                                                                                                                                                                                                                                                                                                                                                         MetSerSerAlaProSerPro-GlyThrGlySerProProSerProSerAsnSerTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACTGGTGCCAGTTCGCCCCTGATCGTGCGCGACCCAGACCGAGCTGCGGCTGTGCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----ProProSerThr1leProThrSerProProProSerSerArgSerThrProSerAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ---ThrProSerTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ccchacadchrcccracacccccccc----agacccaagaccragaacccccccca----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----AGTTGCCATCTCAGCTCCACCTTCCTC-TCCCCAGCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 aLeuLeuVallleValThrLeuIleCysLeuLeuCysLysLysLysArgArgAspGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   uGluAspAlaTyrTyrValProProProProProGlyProLysAlaGlyGlyProTy
                                                                                                                                                                                                                                                                                                                       3590
208
86
239
229
28
                                                                                                                                                                                                                                                                                                                      Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             rThrThrThrProProPlaSerAla------
                                                                                                                                                                                                                                                                                                                                                                                                                 x US-09-016-434-1093 (1-3590)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rccaggcrccagacccarrca----
                                                                                                             S
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE:
CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: Zeller, Karen J.
REGISTRATION NUMBER: 37,071
REFERENCE/DOCKET NUMBER: PA-0002
TELECOMMUNICATION INFORMATION:
TELEPHONE: (650) 845-4166
INFORMATION FOR SEQ ID NO: 1093:
SEQUENCE CHARACTERISTICS:
LENGTH: 3590 base pairs
TYPENDEDNESS: single
TYPENDEDNESS: single
TYPENDEDNESS: single
TYPENDEDNESS: single
TYPENDEDNESS: single
TYPENDEDNESS: single
TYPENDEDNESS: SINGLE
IMMEDIATE SOURCE:
ILBRARY: GENDANK
J: LIBRARY: GENDANK
J: LIBRARY: GENDANK
J: LIBRARY: GENDANK
                                                                                                               PA-0002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    aProProProSerProPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                oThrThrProSerSerProPro-
                                                                                                                                                                                                                                                                                                                         3.48e-16
581.50
38.68%
27.37%
16.84%
                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-086-464-2 (1-647)
                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                            Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           260
                                                                                                                                                                                                                                                                                                                                                                                                                                          Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   168
                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             & 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ያ ያ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        유
```

400

380

322

864

248 627 266 687 286 747 306 804

228 594

208

342

924

360

984

1161

420

434

```
TOPOLOGY: 11 MOLECULE TYPE:
                                                                                                                                                                                                                    Alignment Scores:
                                                                                                                                                                      ; MOLECULE TE
PCT-US96-09193-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              480
                                                                                                                                                                                                                                                                                                    Query Match:
                                                                                                                                                                                                                                  Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                1620
1441 CACACTGCAAGCAGGTCTGGCTGCAGATGCCTGGGCTGCTCCCATCGCCATGCAGATCTA 1500
                                                                                                                                                                                    1669 GCATTTGGAGGCCGCCAGCTGCATCCCCCCTTCCCCGCAGGAGAACTCCTACGTGTGTCCAG 1728
                                                                                                                                                                                                                                                                                                                       729 CACTGGCAGAGCCCACAGTGGGGCTGCTCCATGGCAGCCCCTGGCAGCGCCATCAGGAGC 1788
                                                                                                                                                                                                                                                                                                                                                                                         | ::: ||| |||||| ||||| G-----AGCCTAGGGCCTCTTGGCTCCTGGCACTTGACTCCAGGTG 1902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1903 CCCTCTGGACCCAGCACCCTCAGGGAGGCCGGCTGTCCTCAGGGGGACACGGC-AGGAG 1961
                                                                                                                                                                                                                                  y-----GlnSerAsnValTyrSerSer-- 571
                                                                                                                                                                                                                                                                                                                                                                                                                                    599 uTyrAsnAlaThrGlyGluTyrSerAsnProThrSerAspTyrGlyLeuTyrProSer-- 618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----GlySerSerGluGlyGlnThrThrArgGl 629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           629 uMetGluMetGly-----LysIleLysArgThrGlyGlnGlyTyrSerGlyPro 645
                                                                                                                   1561 CCAGCTGGCTGCTGCTGCCTGCCCGCCGGCCAAAAGGAGGCCTCCTATGACCCAGGT
                                                                1501 CAAGAAGCACCTGGACCCCAGGCCCGGGCCCTGCCCACCTGAGCTGGGCCTGGGCCTGGG
                                                                                               ----CysAlaAlaAlaCysValArgHisSerAlaArgArgArgProArgMetSerGlnIl
                                                                                                                                                                eValArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGl
                                                                                                                                                                                                                                                                                                    -----TyrGlyGlySerThrAspTyrAsp------TyrGlyGlySerThrAspTyrAsp-----
                                                                                                                                                                                                                                                                                                                                                                  -SerSerGlnTyrAsnGluAspMetLysLysPheArgLysMetAlaLeuGlyThrGlnGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 1, Application PC/TUS9609193
GENERAL INFORMATION:
APPLICANT: TILDIATIK, Inc.
TITLE OF INVENTION: INTERLEUKIN-1 RECEPTOR-ASSOCIATED
TITLE OF INVENTION: PROTEIN KINASE AND BINDING ASSAY
NUMBER OF SEQUENCES: 2
CORRESPONDENCE PRESS:
ADDRESSEE: FLEHR, HOHBACH, TEST, ALBRITTON & HERBERT
STREET: 4 Embarcadero Center, Suite 3400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ZIP: 94111-4187

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30

CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US96/09193

FILING DATE: JUNE 5 1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
APPLICATION NUMBER: U.S. Serial No. 08/587,889
FILING DATE: JAN 16 1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Serial No. 08/494,006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTORNEY/AGENT INFORMATION:
NAME: David J. Breaner
REGISTRATION NUMBER: 24,774
REFERENCE/DOCKET NUMBER: FP-62191-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: U.S. (
FILING DATE: JUNE 23 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CITY: San Francisco
STATE: California
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PCT-US96-09193-1
                                                                                                                                                                                                                                  564
                                                                                                                                                                                                                                                                                                  572
                                                                                                                                                                                                                                                                                                                                                                    580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      619
                                                                                               526
                                                                                                                                                                544
                                                              g
                                                                                                                         g
                                                                                                                                                                                              셤
                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                               ઠે
                                                                                          ઠે
                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
```

```
260 CGCTCCGGGCAGGCCAGCGTCCTGTGGCCCTGGATCAACCGCAACGCCCGTGTG 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               208 lThrSerLeuProProProLysAlaProSerProProArgGlnProProProProPr 228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    200 GACTGGTGCCAGTTCGCCGCCCTGATCGTGCGCGACCAGACCGAGCTGCGGCTGTGCGAG 259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   380 GCCTGGCACCCTCCCGCCCCCCCTCCCTCCCAGGCACCACTGCCCCGA-----GG 430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rProProAlaProValThrProProThrArgAsnProProSerValProGlyProPr 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                131 CCCAGCAGCATCCCTGCACCCGCCG-----AGGCCGAGGCCTGGAGCCCCCCCGGA---- 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          oSerAsnProSerArgGluGlyGlySerProArgProProSerSerProSerProProSe 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    128 rproSerSerAspGlyLeuSerThrGlyValValValGlyIleAlaIleGlyGlyValAl 148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      148 aLeuLeuVallleValThrLeuIleCysLeuLeuCysLysLysLysArgArgArgAspGl 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      168 uGluAspAlaTyrTyrValProProProProProGlyProLysAlaGlyGlyProTy 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  188 rGlyGlyGlnGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAspHisValVa 208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----ThrProSerTh 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rProGlySerProProProLeuProGlnProSerProProAlaProThrThrProGlySe 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          80 AIGGCCGGGGGCCGGGGGGGGGGGGCCCGCGCCCCGGCCCCAGCACTTCTTGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           140 GAGGTGCCGCCCTGGGTCATGTGCCGCTTCTACAAAGTGATGGACGCCCTGGAGCCCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MetSerSerAlaProSerPro-GlyThrGlySerProProSerProProSerAsnSerTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ----ProProSerThrIleProThrSerProProProSerSerArgSerThrProSerAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               --- AGTIGCCATCCTCAGCCTCCACCTTCCTC-TCCCCAGCTTT
                                                                                                                                                                                                                                                                                                                                                                                          3590
208
86
239
229
                                                                                                                                                                                                                                                                                                                                                                                                                       Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-086-464-2 (1-647) x PCT-US96-09193-1 (1-3590)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  aProProSerProPro--------
                                                                                                                                                                                                                                                                                                                                                                                             Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               rccaggcrccagacccarrca----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     oThrThrProSerSerProPro-
                       TELEPHONE: (415) 494-8700
TELEFAX: (415) 494-8771
TELEX: 910 277299
INFORMATION FOR SEQ ID NO. 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 3590 base pairs
FELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                          3.48e-16
581.50
38.68%
27.37%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16.84%
                                                                                                                                                                                           TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
Best Local Similarity:
```

199

39

28

32

```
US-10-086-464-2 (1-647) x US-09-602-472A-5 (1-2114)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score:
Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH: 2114
                                                                                                                                                                                                                                                                                                                                                   RESULT 14
US-09-602-472A-5
                                                                                                                                                                                                                              1849
                                                                                                       572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQ ID NO 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No.:
                                                                                                                         셤
                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                          셤
                                                                          셤
                                                                                                                                                      à
                                                                                                                                                                         ď
                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                  ò
                           a
                                                     ò
                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         985 CCAGACCCAGGCCTGCCTCCTCTCGGCTCAGCGACTGGACATCCTTCTGGGTAC 1044
                                                                                                                                                                                                                                                                                                                                                                                                                            1161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAGGGCTGTGAAGACGCACGGTGCCAGGACCAAGTATCTGAAAGAC---CTGGTGGAA-- 1396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ------GAGGAGGCTGAGGAGGCTGGAGTGGCTTTGAGAAGCACCCAGAG 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .501 CAAGAAGCACCTGGACCCCAGGCCCGGGCCCTGCCCACATGAGCTGGGCCTGGGCCTGGG 1560
                                                                                                                                                                                                                                                                                                                                                                                                                400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            420
                                                                                                                                                                                                                                                                                                                                                              360 uHisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySe 380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             uAlaLysIle------AlaSerAspThrAsnThrHisValSerThrArg-- 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----valMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGlyLysLe 452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          uThrGluLysSerAspValPheSerPheGlyValValLeuLeuGluLeulleThrGlyAr 472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gArgProVal-----AspAlaAsnAsnValTyrValAspAspSerLeuValAspTr 489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----CysalaalaAlaCysValArgHisSerAlaArgArgArgProArgMetSerGlnIl 544
                                                                     oProProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGlu---- 266
                                                                                   AGAGAGCTCAGTGCCCTCCTGCAGGAGCCCGCCCCTCTCCGTTTTGCTGGCCCCTCTG 687
                                                                                                                                                                                GGAGAACGCTGACCTGGAGTGGACTGCAGTGAAGCAGAGCTTCCTGACCGAGGTGGAGCA 864
                                                                                                                                                                                                                                                                elleserArgValHisHisArgHisLeuValSerLeuValGlyTyrCysIleAlaGlyAl 342
                                                                                                                                                                                                                                                                                 865 GCTGTCCAGGTTTCGTCACCCAAACATTGTGGACTTTGCTGGCTACTGTGCTCAGAACGG 924
                                                                                                                                                                                                                                                                                                                 342 aLysargleuleuValTyrGluPheValProAsnAsnAsnLeuGlu-----LeuHisLe 360
                                                                                                                                                                                                                                                                                                                               CITCTACTGCCTGGTGTACGGCTTCCTGCCCAACGGCTCCCTGGAGGACCGTCTCCACTG 984
                                             ---- CC 627
                                                                                                                    -GluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPh 286
                                                                                                                                                                 eGlyTyrValHisLysGlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLy 306
                                                                                                                                                                                                                  sValGlySerGly------GlnGlyGluArgGluPheGlnAlaGluValGluIl 322
------CTGGTTCCAAGCCCTGCTTCCTAGCCCTGCTTCCTGTGGCCTCCACGCCC 594
                                                                                                                                 ACAGACAGTGCGGGGGGACCTGGCCTACCTGCCCGAGGAGTACATCAAGACGGGAAAGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAl
                      oProProProPheMetSerSerSerGlyGlySerAspTyrSerAspArgProValLeuPr
                                                                                                                                                                                                                                                                                                                                                                                                                ralaLysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAspIl
                                                                                                                                                                                                                                                                                                                                                                                                                                                            elysAlaSerAsnIleLeuIleAspPheLysPheGluAlaLysValAlaAspPheGlyLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         aLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAla------
                                        595 ATCTCCAGCCCCTTCTTCTACCAAGCCAGGC-
                                                                                                                                                                                                                                                                                                                                                                                                                  380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1441
                                                                                             628
                                                                                                                                                                                            748
                                                                                                                                                                                                                                                                  322
                                                                                                                                                                                                                                                                                                                                         925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          525
                       228
                                                                     248
                                                                                                                     267
                                                                                                                                                                                                                    306
                                                                                                                                                                    286
                                                                                                                                                                                                                                           805
                                                                                                                                                                                                                                                                                                                                 9 6 9
                                                                                                                                                                                                                                                                                                                                                                                                       8 6 8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6 6 6 6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             원
장
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                       ద
                                                             8 & 8 &
                                                                                                                                                                $ 6 $ 6 $ 6 $ $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                    Š
```

```
|||::|||
1789 CAGTGCCCAGGCAGCAGCAGCAGCAGAGGCCCCCAACCAGCCCGTGGAGAGTGACGA 1848
                                                                                                                                                                                                                                                                                                                                                          1669 ecarringaageceeccaeciscarececerrecececadaagaacrecraceracea 1728
                                                                                                                                                               579
                                                                                                                                                                                                 1729 CACTGGCAGAGCCCACAGAGGCTGCTCCATGGCAGCCCCTGGCAGCGCCCATCAGGAGC 1788
                                                                                                                                                                                                                                                                                                                             618
                                                                                                                                                                                                                                                                                                                                                                                                             619 -----Thranking Figure 619 -----GlySerSerSerGluGlyGlnThrArgGl 629
                                                                                                                                                                                                                                                                                                                                                                                                                                                    1903 cccrcregacccagcacccrcaggaaggccggcrgrccrcaggggacacacgcs 1961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   629 uMetGluMetGly------LysileLysArgThrGlyGlnGlyTyrSerGlyPro 645
                                                                                                                                                                                                                                                                                                                               599 uTyrasnalaThrGlyGluTyrSerasnProThrSeraspTyrGlyLeuTyrProSer--
                                                                                  -GlnSerAsnValTyrSerSer--
                                                                                                                                                                 -----TyrGlyGlySerThrAspTyrAsp------TyrGlyGlySerThrAspTyrAsp-----
                                                                                                                                                                                                                                              580 -SerSerGlnTyrAsnGluAspMetLysLysPheArgLysMetAlaLeuGlyThrGlnGl
eValArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgProGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: Bidney, Dennis L.
APPLICANT: Hu, Xu
APPLICANT: Hu, Xu
TITLE OF INVENTION: Sunflower Disease Resistance Genes
FILE REPREBENCE: 35718/2006330
CURRENT FILING DATE: 2000-06-23
PRIOR FILING DATE: 1999-06-24
NUMBER OF SEQ ID NOS: 64
SOFTWARE: FASELSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2114
143
85
136
51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; Sequence 5, Application US/09602472A; Patent No. 6608240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: misc_feature
COATION: 1475
CHER INFORMATION: n = A,T,C or
US-09-602-472A-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2.96e-16
578.00
55.07%
34.54%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCATION: (1)...(2114)
OTHER INFORMATION: n = A,T,C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OTHER INFORMATION: n = A,T,C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: DNA ORGANISM: Helianthus annuus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: misc_feature
LOCATION: 1475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: misc_feature
```

```
1116 ACGATTCTTGATGCAACTGAAACTTCTCTGAAGCTAATAAGATTTCATCCTGCTCATAT 1175
                                                         594 AlaLeu-----GlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnProThrSer
                                                                                                                                                                                                                                                                                                                                                                  S-LOCUS RECEPTOR KINASE GENE IN A SELF-INCOMPATIBLE BRASSICA NAPUS LINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Þ
                                                                                                                                                                                 1176 GAT---TCCGTGTAC---AAGGGACGGCTACAAAATGGACAA 1211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LOCATION: 1..2574
PUBLICATION INFORMATION:
AUTHORS: GORING, DAPHNE
AUTHORS: GORING, DAPHNE
AUTHORS: THE S-LOCUS RECEPTOR KINASE GENE IN A
TITLE: THE S-LOCUS RECEPTOR KINASE GENE IN A
TITLE: SELF-INCOMPATIBLE BRASSICA NAPUS LINE ENCODES
TITLE: FUNCTIONAL SERINE/THREONINE KINASE
RELEVANT RESIDUES IN SEQ ID NO: 1: FROM 1 TO 2749
                                                                                                                                          612 AspTyrGlyLeuTyrProSerGlySerSerSerGluGlyGln 625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                      McAndrews, Held & Malloy, Ltd
0 W. Madison St. Suite 3400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/07/959,945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/265,628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US 07/847,564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME: Pochopien Ph.D., Donald J. RELEGISTRATION NUMBER: 32,167
TELECOMMUNICATION INFORMATION:
TELEPHONE: 312-707-8889
TELEFAX: 312-707-9155
                                                                                                                                                                                                                                                        Sequence 1, Application US/08265628
Patent No. 5821094
GENERAL INFORMATION:
APPLICANT: Goring, Daphne
TITLE OF INVENTION: S-LOCUS RECEPT
TITLE OF INVENTION: S-LOCUS RECEPT
TITLE OF INVENTION: S-LOCUS RECEPT
TITLE OF SEQUENCES: 10
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S-locus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         500 W. Madison St.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 03-MAR-1992
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      : Brassica napus
oleifera
AL ISOLATE: W1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LENGTH: 2749 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEFAX: 312-707-9155
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POSITION IN GENOME:
CHROMOSOME/SEGMENT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Abun.
STREET: Soc.
CITY: Chicago
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER: IBM PC
OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGINAL SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INDIVIDUAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ANTI-SENSE:
                                                                                                                                                                                                                          RESULT 15
US-08-265-628-1
                                                                                                셤
                                                                                                                                                                             셤
                                                         8
                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1005 TTTCCA-----TCCACTTGGGAAAAGACAGTTGGAGGTACAGATTTAAAATCCCTG 1055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  945 CTTGAGTCAATCCTAGCCTTACAGGAGAAAACCGAGAGTACATGGGTACCAACATTTCTC 1004
                                                                                                                                                                                   ||| ||||:::::||||
130 TTTGATGAGTCGTTGGTGATAGGACGTGGGGGGGTTTGGCAAGGTTTACAGAACCTTC 189
                                                                                                                                                                                                                                                                      190 ACTTATGGGGAAACATACTTGGATGCTGCAATTAAGCGACTGGAATCAGGTTCTGGTCAA 249
                                                                                                                                                                                                                                                                                                                                                   310 GIGTCTTTAATTGGTTACTGTAGTGATGGCAAGAGATGGTTCTTGTATATGAACATAGT 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          372 ThrArgLeuLysIleAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHis-----Glu 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     390 AspCysAsnProLysllelleHisArgAspIleLysAlaSerAsnIleLeLysPhe 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    187 GGTATTAACCATGGAGTTATACATCGGGATGTTAAGAGCACAAAATATATTGTTAGATGAC 546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       :::::: |||:::::: |||
727 GTCCTATGTGGGAAACAAGTAGTACTGATGAGGAGCAC-TGG------GGTTTGGCA 776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       885 GACCGGTGTTTGCATAGCCGTCCCAAGCAACGTCCTGCAATGGCGGAGGTTGTGATTGGT 944
                                                                                                      275 PheserGluAlaAsnLeuLeuGlyGlyGlyPheGlyTyrValHisLysGlyValLeu 294
                                                                                                                                                                                                                                             295 ProSerGlyLys-----GluValAlaValLysGlnLeuLysValGlySerGlyGln 311
                                                                                                                                                                                                                                                                                                                              GlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHisHisArgHisLeu 331
                                                                                                                                                                                                                                                                                                                                                                                                           ValSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuValTyrGluPheVal 351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrpSer 371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              410 LysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIle-----AlaSerAspThr 427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               128 AsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAla 447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              448 AlaSerGlyLysLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGlu 467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     667 CAAACAGGTAGGCTGACTCGAAAGTCTGACGTGTATGCCTTTGGGGTGGTCCTGTTTGAA 726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeulleThrGlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuVal 487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            488 AspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAla 507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     777 ACATGGGCTCAAGACTCTCTT------AAAGAAGGAAGGCTAAAGCAAATTGTT 824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AspalaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAla 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    825 GATTCTAATTTAAGGGGGGAGAATATCCCCAAAATGTTTGAAGGAGTTTGCACTACTAGCT 884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               528 AlaAlaCysValArgHisSerAlaArgArgArgProArgMetSerGlnIleValArgAla 547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              562 ArgProGlyGlnSerAsnValTyrSerSerTyrGlyGlySerThrAspTyrAspSerSer 581
                                                                               255 ValLeuGlyPheSerLysSerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGly 274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              582 Gln------TyrAsn-----GluAsp-----MetLysLysPheArgLysMet 593
235 SerSerGlyGlySerAspTyrSerAspArgProValLeuProProProSerProGlyLeu 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     52 GCTGAATCTTCCTCCTCATATTCACCACAACCGTGC---
                                                                                                                                                                                                                                                                                                                              312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              352
                                                                                                                       88
                                                                                                                                                                                                                                                                                                                                                                                                               332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                208
                                  셤
                                                                               ò
                                                                                                             셤
                                                                                                                                                            ઠે
                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠ
```

```
중 점
                                                            6 6 6 6 6 6
                                                                                                                                                                                         8 & 8
                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                             |||||||||:::|||
------CAAGATTTGCTAATGAAC 1479
                                                                                                                                                                                                                                                                                                                                                   PheLysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThrAsn 428
                                                                                                                                                                                                                                                                                                                                                                                            1570 AAAGCCACCGAAAATTTCTCCAATTGTAACAAACTCGGACAAGGTGGTTTCGGTATTGTT 1629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              jeuvalilevalThrLeulleCysLeujeuCysLysLysLysArgArgArgAspGluGlu 169
                                                                                                                                                                                                                                                                                                                                                                         270 ArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrVal 289
                                                                                                              SerSerAspGlyLeuSerThrGlyValValValGlyIleAlaIleGlyGlyValAlaLeu 149
                                                                                                                                                                                                                                                                                                   ProProPheMetSerSerGlyGlySerAspTyrSerAspArgProValLeuProPro 249
                                                                                                                                                                                                                                                                                                                                      250 ProSerProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGluLeuAla 269
                                                                                                                                                                                                                                                                                                                                                                                                              HistysGlyValieuProSerGlyLysGluValAlaValLysGlnLeuLysValGlySer 309
                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHisHisArg 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HistonvalSerLeuValGlyTyrCyslleAlaGlyAlaLysArgLeuLeuValTyrGlu 349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PheValProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArg---ProThrMet 368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                369 GluTrpSerThrArgLeuLysIleAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHis 388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GluAspCysAsnProLysIleIleHisArgAspIleLysAlaSerAsnIleLeuIleAsp 408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ThrHisValSerThrArg---ValMetGlyThrPheGlyTyrLeuAlaProGluTyrAla 447
                                                                                                                                                                                                                         190 GlyGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAspHisValValThr
                                                                                                                                                                                      AspalaTyrTyrValProProProProProProGlyProLysAlaGlyGlyProTyrGly
                                                                                                                                                                                                 ||||
|1429 ACTGCAACATCTATTGTAAAT------
                                                                                                                                                                                                                                                              SerLeuProProProLysAlaProSerProProArgGlnProProProProPro
                                                                                                                                                                                                                                                                                 1480 GGGATG------ATACTATCAAGCAAGAGACAGTGCCT-----
                                                                                                                                                                                                                                                                                                              AACGCGAATGGGAAAACCATAGCGTTGATTGTTGGAGTTTGTGTT
                            2749
154
94
160
91
                           Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                           x US-08-265-628-1 (1-2749)
                          5.04e-16
575.00
49.80%
30.92%
16.65%
                                                                                           US-10-086-464-2 (1-647)
                                           Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                  Alignment Scores:
Pred. No.:
US-08-265-628-1
                                                                                                                                                                                       170
                                                                                                                                                                                                                                                              210
                                                                                                                                                                                                                                                                                                   230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     389 (
                                                                                                             130
                                                                                                                                                                   1372
                                                                                                                                                                                                                                            1450
                                                                                                                                                                                                                                                                                                                                                                                                               290
                                                                                                                                                                                                                                                                                                                                                                                                                                                   310
                                                                                                                                                  150
                                                                                                                                                                                                                                                                                                                                                         1552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            350
                                                                                                                                                                                                                                                                                                                     1513
                             ..
No.:
                                                                                                            ò
                                                                                                                            g
                                                                                                                                          ∂ 8
                                                                                                                                                                                g
```

```
2169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2403
                                                                                                                                                                                                           2404 TCCGTGGTTTGGATGCTTGGAAGTGAAGCA----ACAGAGATTCCTGAGCCTACACCG 2457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCAGGITATTCCCTCGGAAGAGTCCTTATGAAAATAATCCTTCATCAAGTAGACATTGC 2517
                                                                                                                                                                                 487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2518 GACGACGACGAATCCTGGACGGTGAACCAGTACACCTGCTCAGACATCGATGCCCGGTAG 2577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GlnIleValArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArg 562
Asp-----TrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAsp-----
                                                                                                                                                                                                                                                                                                                                                                                  503 PheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2344 TGCATACAAATTGGTCTCTTGTGTTCAAGAACGTGCAGAGCATAGACCAACGATGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----ThraspSerSerGln
                                                                                                                                                                                                                                                                                                                                  AGCTATGTATGGAGTCACTGGACGGAGGGAAGAGCCCTAGAAATTGTTGATCCAGTCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    523 MetValAlaCysAlaAlaCysValArgHisSerAlaArgArgArgProArgMetSer
                                                                            448 AlaSerGlyLyBLeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGlu
                                                                                                                                                                                 LeuileThrGlyArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TyrasnGluaspMetLysLysPheargLysMetalaLeuGlyThrGlnGluTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ProGlyGlnSerAsnValTyrSerSerTyrGlyGlySer----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                563
                                                                                                                                                                                 468
                                                                                                                                                                                                                                                                                   488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2458
```

Search completed: May 13, 2004, 01:36:26 Job time : 187 secs

Perfect score:

е 6

Scoring table: Sequence:

```
Sequence 5, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 71008, A Sequence 25509, A Sequence 25509, A Sequence 42232, A Sequence 42232, A Sequence 12191, A Sequence 1222, Ap Sequence 1922, Ap Sequence 3665, App Sequence 3665, App Sequence 3665, App Sequence 2510, A Sequence 2510, A Sequence 2510, A Sequence 2510, A Sequence 3655, App Sequence 2510, A Sequence 2510, A Sequence 2510, A Sequence 2510, A Sequence 2510, A Sequence 2510, A Sequence 2510, A Sequence 2510, A Sequence 2510, A Sequence 2510, A Sequence 2510, A Sequence 2510, A Sequence 2510, A Sequence 2510, A Sequence 2510, A Sequence 2510, A Sequence 25110, A Sequence 2510, A Sequence 25110,  A Sequence 25110, A Sequence 251111, A Sequence 25111, A Sequence 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 1079, Ap
Sequence 1079, Ap
Sequence 311, App
Sequence 25617, A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 1, Application US/10086464

Publication No. US2020199218A1

GENERAL INFORMATION:

APPLICANT: GORING, Daphne R. et al.

TITLE OF INVENTION: PROLINE-RICH EXTENSIN-LIKE RECEPTOR KINASES

FILE REFRENCE: P. 25, 762-A USA

CURRENT APPLICATION NUMBER: US 10/086, 464

CURRENT FILING DATE: 2002-02-19

PRIOR APPLICATION NUMBER: US 10/069, 304

PRIOR APPLICATION NUMBER: US 60/149, 466

PRIOR PELING DATE: 1099-08-19

PRIOR PELING DATE: 1999-08-19

PRIOR PILING DATE: 1999-08-19

PRIOR PELING DATE: 1999-10-13

NUMBER OF SEQ ID NOS: 27

SOFTWARE: Patentin Ver. 2.1

SEQ ID NO 1

SEQ ID NO 1

SEQ ID NO 1

SEQ ID NO 1

SEQ ID NO 1

SEQ ID NO 1

SEQ ID NO 1

SEQ ID NO 1

SEQ ID NO 1

SEQ ID NO 1

SEQ ID NO 1

SEQ ID NO 1

SEQ ID NO 1

SEQ ID NO 1

SEQ ID NO 1

SEQ ID NO 1
1 US-10-086-464-1

1 US-10-086-464-3

3 US-10-425-114-2326

3 US-10-425-114-2326

3 US-10-425-114-33031

4 US-10-086-464-9

4 US-10-086-464-9

5 US-10-086-464-9

6 US-10-086-464-9

7 US-10-086-464-9

8 US-10-086-464-1

9 US-10-086-464-1

10S-10-425-114-9137

10S-10-425-114-9137

10S-10-425-114-9137

10S-10-425-114-1227

10S-10-425-114-1227

10S-10-425-114-1227

10S-10-425-114-1227

10S-10-425-114-1227

10S-10-425-114-1231

10S-10-425-114-1231

10S-10-425-114-1231

10S-10-425-114-1231

10S-10-425-114-1331

10S-10-425-114-1331

10S-10-425-114-1331

10S-10-425-114-1331

10S-10-425-114-1331

10S-10-425-114-3065

10S-10-425-114-3065

10S-10-425-114-3065

10S-10-425-114-3065

10S-10-425-114-3065

10S-10-425-114-3065

10S-10-425-114-3065

10S-10-425-114-3065

10S-10-938-842A-1079

10S-10-425-114-3065

10S-10-425-114-3065

10S-10-425-114-3065

10S-10-425-114-3065

10S-10-425-114-3065

10S-10-425-114-3065

10S-10-425-114-3065

10S-10-425-114-3065

10S-10-425-114-3065

10S-10-425-114-3065

10S-10-425-114-3065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ALIGNMENTS
        1817
2025
3148
3148
2284
2012
1011
     JS-10-086-464-1
     1415.5
1415.5
1416.5
1339
1333.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233.8
1233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          819.5
816.5
816.5
811
806.5
804.5
                                                                                                                                                                                                  Command line parameters:
-MODEL=frame+ p2n. model -DEV=xlp
-QG-CgnZ 1/USFTO spool p/US10086464/runat_11052004_121817_7949/app query.fasta_1.839
-QG-CgnZ 1/USFTO spool p/US10086464/runat_11052004_121817_7949/app query.fasta_1.839
-DB=Published Applications NA -QFPMT=fasta_9 -SUFFIX=p2n.rnpb -MINMATCH=0.1
-LOOPCL=0 -LOOPEXT=0 -UNITS=bits -START=1 -RND=-1 -MATRIX=blosum62
-TRANS=human40.cdi -LIST=45 -DOCALIGN=200 -THR SCORE=pct -THR MAX=100
-MAXIEN=200000000 -USER=US10086464 @CGN 1 1 333 @runat 11052004 121817_7949
-NCFU-6 -ICPD=3 -NO MMAP -LAGREQUERY -NEG SCORES=0 -MIT -DSPBLOCK=100
-LONGLOG -DEV TIMEOUT=120 -WARN TIMEOUT=30 -THRRANS=1 -XGAPOP=10 -XGAPEXT=0.5
-FGAPOP=6 -FGAPEXT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                                                                                                ; Search time 677 Seconds
(without alignments)
4329.253 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                         647
                                                                                                                                                                                                                                                                                                                                      .....REMEMGKIKRTGQGYSGPSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Published Applications NA:*

1. /cgn2_6/ptodata/2/pubpna/USO7_PUBCOMB.seq:*
2. /cgn2_6/ptodata/2/pubpna/BFCT WW PUB.seq:*
3. /cgn2_6/ptodata/2/pubpna/USO6_NEW PUB.seq:*
4. /cgn2_6/ptodata/2/pubpna/USO6_PUBCOMB.seq:*
5. /cgn2_6/ptodata/2/pubpna/USO6_PUBCOMB.seq:*
6. /cgn2_6/ptodata/2/pubpna/USO7_NEW PUB.seq:*
7. /cgn2_6/ptodata/2/pubpna/USO8_NEW PUB.seq:*
8. /cgn2_6/ptodata/2/pubpna/USO8_PUBCOMB.seq:*
9. /cgn2_6/ptodata/2/pubpna/USO8_PUBCOMB.seq:*
11. /cgn2_6/ptodata/2/pubpna/USO9_PUBCOMB.seq:*
12. /cgn2_6/ptodata/2/pubpna/USO9_NEW_PUB.seq:*
11. /cgn2_6/ptodata/2/pubpna/USO9_NEW_PUB.seq:*
12. /cgn2_6/ptodata/2/pubpna/USO9_NEW_PUB.seq:*
13. /cgn2_6/ptodata/2/pubpna/USO9_NEW_PUB.seq:*
14. /cgn2_6/ptodata/2/pubpna/USO9_NEW_PUB.seq:*
15. /cgn2_6/ptodata/2/pubpna/USO9_NEW_PUB.seq:*
16. /cgn2_6/ptodata/2/pubpna/USO9_NEW_PUB.seq:*
16. /cgn2_6/ptodata/2/pubpna/USO9_NEW_PUB.seq:*
18. /cgn2_6/ptodata/2/pubpna/USO0_NEW_PUB.seq:*
19. /cgn2_6/ptodata/2/pubpna/USO0_NEW_PUB.seq:*
19. /cgn2_6/ptodata/2/pubpna/USO0_NEW_PUB.seq:*
19. /cgn2_6/ptodata/2/pubpna/USO0_NEW_PUB.seq:*
        GenCore version 5.1.6
(c) 1993 - 2004 Compugen Ltd.
                                                                                                            OM protein - nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2941586 segs, 2264995651 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                             Xgapop 10.0 , Xgapext
Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
                                                                                                                                                                                                                                                                                                            3453
1 MSSAPSPGTGSPPSPSNST.
                                                                                                                                                                      May 13, 2004, 00:33:06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query
Match Length DB
                                                                                                                                                                                                                                                                                  US-10-086-464-2
                                  Copyright
                                                                                                                                                                                                                                                                                                                                                                                            BLOSUM62
```

Database

Description

Score

Result

25269, A 71008, A 35509, A 29328, A 36420, A 42232, A

15, Appl 16, Appl 25269, A

Sequence 6 Sequence 4 Sequence 7 Sequence 6 Sequence 1 Sequence 2

Sequence Sequence Sequence 1 Sequence 1 Sequence 2 Sequence 5 Sequence 5 Sequence 5 Sequence 7

Sequence Sequence Sequence Sequence

		361 HisglygluglyargProThrMetGluTrpSerThrargLeuLysllealaLeuGlySer 380 	AlaLysGlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAspIle	401 LysAlaserAsnileLeulleAspPneLysPneGluAlaLysValAlaAspPneGlyLeu 420		1321 TACTTGGCTCCGGAATACGCTGCAGGGAGAAGTCTGACGTTTTCTCA 1380 461 PheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnVal 480 1301 THIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	TyrvalaspaspserleuvalaspTrpalaargProLeuLeuasnargalaserGluGln 		AlaArgmetValAlacysAlaAlaAlaCysValArgHisSerAlaArgArgArgProArg	MetSerGlnIleValArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGly 	561 MetArgProGlyGlnSerAsnValTyrSerSerTyrGlyGlySerThrAspTyrAspSer 580	SerGinTyrasnGluaspMetLysLysPheArgLysMetAlaLeuGJyThrGlnGluTyr 	601 AsnAlaThrGlyGluTyrSerAsnProThrSerAspTyrGlyLeuTyrProSerGlySer 620 	621 SerSerdludlyGlnThrThrArgGluMetGluMetGlyLyBileLyBArgThrGlyGln 640 	641 GlyTyrSerGlyProSerieu 647
a & t	8 8 8 8	à g	& 8 &	& 8 &	음 <i>&</i>	음 중 음	8 8	& A	<i>장</i> 셤	& A	දුරු ජූ	දි දි	සි ර	ර් සි	ờ
; ORGANISM: Brassica napus ; FEATURE: ; LOCATION: (1)(1944) US-10-086-464-1	ignment Scores: ed. No.: 543.00 576. stern Similarity: 100.00% 97 Local Similarity: 100.00% 97 Match: 14	US-10-086-464-2 (1-647) x US-10-086-464-1 (1-1944) QY 1 MetSerSerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThr 20 Dh 1 AngreterGreaterColl	21 ThrThrThrProProPioSerAlaProProProThrThrProSerSerProProPro	Qy 41 ProSerThrileProThrSerProProProSerSerArgSerThrProSerAlaProPro 60	181	CCGCTCCAACTACGCCCGGATCTCCACCCGCACCTGTTACTCCTCCTACTCGAAACCCT ProproserValProGlyProProSerAsnProSerArgGluGlyGlySerProArgPro	301 CACCTTCAGTCCCAGGACCACCGTCCAATCCTTCACGGAAGGAGGATCTCCTCGACCT 121 ProSerSerProSerProSerProSerSerSerAspGlyLeuSerThrGlyValValVal 11	DD 351 CCATCTTCTCCCTCGCCGCCGTCTTCTTCCGACGGGTTATCAACGGAGTGGTGGTGGTG 420	161 LysLysLysArgArgArgAsgCluGluAspAlaTyrTyrValProProProProProProProProProProProProProP	BnAla ACGCA	201 ThrProProSerAspHisValValThrSerLeuProProProProLysAlaProSerPro 	221 ProArgGlnProProProProProProProPheMetSerSerSerGlyGlyGlySerAsp	Qy 241 TyrSerAspArgProValleuProProProSerProGlyLeuValleuGlyPheSerLys 260 1	261 SerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeu .	DD 781 AGCACTTTCACATACGAGGAGCTAGCTAGAGCCACCAATGGTTTCTCCGAGGCGAACTTG 840 Qy 281 LeuGlyGlnGlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLysGluVal 300

```
GCTAAAGGACTTTCTTATCTTCATGAAGATTGCAATCCTAAAATCATTCACCGTGATATC 1296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGluGln
         LysLysLysArgArgArgAspGluGluAspAlaTyrTyrValProProProProProPro
                                                                                         ThrProProSerAspHisValValThrSerLeuProProProProLysAlaProSerPro
                                                                                                      SerThrPheThrTyrGluGlufeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeu
                                                                                                                                                                                                                                 AGCACTTTCACATACGAGGAGCTAGCTAGAGCCACCAATGGTTCTCCCGAGGCGAACTTG
                                                                                                                                                                                                                                                                                                                                                                                                     GGTGCCAAAAGATTGCTTGTCTATGAGTTTGTTCCTAACAACAATCTCGAGCTTCACCTC
                    GlyProlysAlaGlyProTyrGlyGlyGlnGlnGlnGlnTrpArgGlnGlnAsnAla
                                                              GGTCCCAAAGCCGGAGGACCTTACGGTGGACAGCAGCAACAATGGCGGGAACAAAAAGGCA
                                                                                                                                                                            TyrSerAspArgProValLeuProProProSerProGlyLeuValLeuGlyPheSerLys
                                                                                                                                                                                                 racregacedrecaerrerrecreeaerecreeaegeerrerageerrerecaaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AlaLysGlyLeuSerTyrLeuHisGluAspCysAsnProLys1leIleHisArgAspIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TyrLeuAlaProGluTyrAlaAlaSerGlyLyBLeuThrGluLyBSerAspValPheSer
                                                                                                                                                                                                                                                                                  937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1417
                             577
                                                 181
                                                                      637
                                                                                          201
                                                                                                               697
                                                                                                                                                        757
                                                                                                                                                                             241
                                                                                                                                                                                                817
                                                                                                                                                                                                                                          877
                                                                                                                                                                                                                                                              281
                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                            997
                                                                                                                                                                                                                                                                                                                                                321
                                                                                                                                                                                                                                                                                                                                                                    1057
                                                                                                                                                                                                                                                                                                                                                                                         341
                                                                                                                                                                                                                                                                                                                                                                                                             1117
                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                     1177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1597
          161
                                                                                                                                    221
                                                                                                                                                                                                                      261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  501
                                                                                                                                                                                                                                                                             요
                                                                                                                                                                                                                                                                                                 දු පු
                                                                                                                                                                                                                                                                                                                                            6 g 6
                                                                                                                                                                                                                                                                                                                                                                                                      8 6 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8 & 8
          8 8
                                          à
                                                               원
장
                                                                                                          요
                                                                                                                                   ઠે
                                                                                                                                                  원
                                                                                                                                                                      ઠે
                                                                                                                                                                                              a
                                                                                                                                                                                                              8
                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ર્જ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8 6 8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCATCCACTATTCCGACATCTCCTCCTTCTTCTCGCTCTACACCTTCTGCTCCTCCT 276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProProSerValProGlyProProSerAsnProSerArgGluGlyGlySerProArgPro 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                576
                                                                                                                                                                                                                                                                                                                                                                                                                                                     40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCACCACTCCTCCTCCAGGTTCCGCTCCTCCTCCCACCACCACCTCTTCTCTTCTCCTCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlylleAlalleGlyGlyValAlaLeuLeuValIleValThrLeuIleCysLeuLeuCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ThrThrThrProProAlaSerAlaBroProProThrThrProSerSerProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ProAlaProThrThrProGlySerProProAlaProValThrProProThrArgAsnPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGCTCCAACTACGCCCGGATCTCCACCCGCACCTGTTACTCCTCCTACTCGAAAACCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCACCTTCAGTCCCAGGACCACCGTCCAATCCTTCACGCGAAGGAGGATCTCCTCGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGAATCGCCATCGCAGGAGTCGCTCTGCTTGTGATAGTGACTCTGATTTGTCTCCTCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                            MetSerSerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProSerThr1leProThrSerProProProSerSerArgSerThrProSerAlaProPro
                                   Sequence 3, Application US/10086464

| Publication No. US20020199218A1
| GENERAL INFORMATION:
| APPLICANT: GORING, Dapine R. et al.
| TITLE OF INVENTION: PROLINE-RICH EXTENSIN-LIKE RECEPTOR KINASES
| FILE REPERENCE: P 25,762-A USA
| CURRENT APPLICATION WUMBER: US 10/086,464
| CURRENT APPLICATION WUMBER: US 10/069,304
| PRIOR APPLICATION WUMBER: US 10/069,304
| PRIOR PILING DATE: 2002-02-19
| PRIOR PILING DATE: 2000-02-19
| PRIOR FILING DATE: 1099-08-19
| PRIOR FILING DATE: 1999-08-19
| RIOR PRIOR PILING DATE: 1999-08-19
| PRIOR FILING DATE: 1999-08-19
| RIOR PILING DATE: 1999-08-19
                                                                                                                                                                                                                                                                                                                                               2189
647
0
0
0
                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-086-464-2 (1-647) x US-10-086-464-3 (1-2189)
                                                                                                                                                                                                                                                                                                                                                1.05e-215
3453.00
100.00%
100.00%
                                                                                                                                                                                                                                                   TYPE: DNA
ORGANISM: Brassica napus
FEATURE:
NAME/KEY: CDS
                                                                                                                                                                                                                                                                                             LOCATION: (1)..(2189)
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                    Alignment Scores:
Pred. No.:
Score:
Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                           ; OTHER INFORM
US-10-086-464-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               397
용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8 6 8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 68686666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ઠ
```

1056

320

300

966

1176

360

1236

400

1356

420

1116

340

1476

460

1536

500

SerProProProLeuProGlnProSerProProAlaProThrThrProGlySerProPro 90	TCCCGGAGCTCGCCTCTCCTCCGCATCGAACCGACCACTCGTCGGTCG	149 LeuLeuvallleValThrieulleCysLeuLeuCysLysLysLysArgArgArgAgargArgArgArgArgArgArgArgArgArgArgArgArgAr	187 ProtyrglygluglnglnglnfrpArgglnglnAsnAlaThrProProSerAspHis 206	ValvaThrSerieuProProProProLysAlaProSerProProArgGln 2 [402 AlaSerAsnileLeuileAspPheLysPheGluAlaLysValAlaAspPheGlyLeuAla 421
64 65 65 65 65 65 65 65 65 65 65 65 65 65	8 6 8	8 6 8 6	oy G	8 4 8 4 8 4 8 4 8 8 8 8 8 8 8 8 8 8 8 8	ኝ B δ
	1777 ATGAGACCAGGTCAAAGCAATGTATACAGCTCATACGGAGGAAGCACCGATTATGACTCG 581 SerGInTyrasnGluaspMetLysLysPheargLysMetAlaLeuGlyThrGlnGluTyr	Oy 601 AsnAlaThrGlyGluTyrSerAsnProThrSerAspTyrGlyLeuTyrProSerGlySer 620 1997 AACGCCACGGGTGAGTAACCCACGGTGACTTAGGACTACCCGTTGATTACCCGTTGATTACCCGTTGATTACCCGTTGATTACCGTTGATTACCGGTTGATTACTGGATTACCGTTGATTACCGTTGATTACTGGTTTCA 1956 Qy 621 SerSerGluGlyGlnThrThrThrThrThrGluMetGluMetGlyLysleLysleLysArgThrGlyGln 640 Db 1957 AGCAGCGAGGCCCAAACCACGCGAAATGGAGATGGGGAAGATTAAGAGAACCGGTCAG 2016	Oy 641 GlyTyrSerGlyProSerLeu 647 Db 2017 GGTIATAGTGGACCTICTCTT 2037	### SERUAT 3 ##	7 4

Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:

120 196

213

234

251 354 271 414

294

176

9

```
ThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrValHisLys 291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrpSer 371
                                                                                                                                                                                                                                                                         ProProLysAlaProSerProProArgGlnProProProProProProProPheMet 233
                                                                                                                                                                                                        cceccccccccc---cceracaagagagarccaracearecaagaagarccaeagrace--- 174
                                                                                               ProProProProGlyProLysAlaGlyGlyProTyrGlyGlnGlnGlnGlnTrpArg
                                                                                                                                                                                                                                                                                      CGGCCAGCATATGCCAATCGTCCTCCACAGCCGCCAGCGCCGCCACCACCAGCGATGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                   ACTGATGGATTCTCGGATGCTAATCTCCTTGGACAAGGTGGTTTTGGCTATGTTCACAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Thrargleulys1leAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerThrArgValMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGlyLys
                                                                                                                                                                                                                              GlnGlnAsnAla----ThrProProSerAspHisValValThrSerLeuPro---Pro
                                                                                                                                                                                                                                                                                                                  SerSerSerGly-----GlySerAspTyrSerAspArgProValLeuProProSer
                                                                                                                                                                                                                                                                                                                                ProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGluLeuAlaArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysValGlySerGlyGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHisHisBargHisLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ValSerLeuValGlyTyrCyslleAlaGlyAlaLysArgLeuLeuValTyrGluPheVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCTAGATTAAAGATCAGTTTGGGTGCTGCCAAGGGTTTAGCTTATCTTCATGAGAGTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlualalysvalalaasppheGlyLeualalysIleAlaSerAspThrAsnThrHisVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   caecaaaarececcrecrecrecececereaacarereereaagarecaecerreeer
                                                                                                                                                                                                                                                                                                                                                                        cccaataacacatregaatrecactracareceaaagaregaccaacaaregagregeer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-086-464-2 (1-647) x US-10-425-114-2326 (1-1724)
 6.76e-113
1870.00
79.85$
69.67$
54.16$
              Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                139
                                                                                                                      ٦
                                                                                                                                                               61
                                                                                                                                                                                                         121
                                                                                                                                                                                                                               197
                                                                                                                                                                                                                                                   175
                                                                                                                                                                                                                                                                          214
                                                                                                                                                                                                                                                                                               235
                                                                                                                                                                                                                                                                                                                     234
                                                                                                                                                                                                                                                                                                                                         295
                                                                                                                                                                                                                                                                                                                                                                                    355
                                                                                                                                                                                                                                                                                                                                                                                                         272
                                                                                                                                                                                                                                                                                                                                                                                                                             415
                                                                                                                                                                                                                                                                                                                                                                                                                                                  292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           432
                                                                                                                                                                                    177
                                                                                                                                                                                                                                                                                                                                                              252
   red. No.:
                                                                                                                                                                                                   8 6 8
                                                                                                                                                                                                                                                                   $ 8 $
                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                              $ B $
                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                 6 8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8 & 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                ò
                                                                                                                ď
                                                                                                                                          8 6
                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 2326, Application US/10425114
; Bequence 2326, Application No. US20040034888A1
; Publication No. US20040034888A1
; GENERAL INFORMATION:
; APPLICANT: Liu, Jingdong
; APPLICANT: Zhou, Yihua
; APPLICANT: Screen, Steven B
; APPLICANT: Cao, Yongwei
; TITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associated With
; TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
; FILE REFERENCE: 38-21(53313)B
; CURRENT APLICANT: 2003-04-28
; NUMBER OF SEQ ID NOS: 73128
; SEQ ID NOS: 73128
                                              CAGTACAAGGAAGACATGAAAAAGTTCAGAAAATGGCATTGGGAACTCAGGAGTATGGT 2009
                                                                                                                                                                                                                                                                                                                                                                                                       GCAAGCAGTGAGTACAGTGCCGCTACAAGTGAGTATGGTTTAAACCCATCAGGCTCAAGT 2069
                                                                           GlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnValTyr 481
                                                                                                                      ValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGly 501
                                                                                                                                                                                                          ArgMetValAlaCysAlaAlaAlaCysValArgHisSerAlaArgArgArgProArgMet 541
                                                                                                                                                                                                                                                   SerGlnIleValArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMet 561
                                                                                                                                                                                                                                                                                              ArgProGlyGlnSerAsnValTyrSerSerTyrGlyGlySerThrAspTyrAspSerSer 581
                                                                                                                                                                                                                                                                                                                                                                                    AlaThrGlyGluTyrSerAsnProThrSerAspTyrGlyLeuTyrProSerGlySerSer 621
                                                                                                                                                                 AspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMetAla 521
                                                                                                                                                                                                                                                                                                                                         GlnTyrAsnGluAspMetLysLysPheArgLysMetAlaLeuGlyThrGlnGluTyrAsn 601
LeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPheSerPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OTHER INFORMATION: Clone ID: 700209610_FLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2127 AATCAAGGITTCAGIGGAAGTICI 2150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlyGlnGlyTyrSerGlyProSer 646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: DNA
ORGANISM: Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alignment Scores:
                                                       1533
                                                                            462
                                                                                                                                           1653
                                                                                                                                                                                     1713
                                                                                                                                                                                                          522
                                                                                                                                                                                                                                                                                                                                                                                                                                                  2070
             1473
                                                                                                1593
                                                                                                                       482
                                                                                                                                                                                                                               1773
                                                                                                                                                                                                                                                    542
                                                                                                                                                                                                                                                                          1833
                                                                                                                                                                                                                                                                                                                     1893
                                                                                                                                                                                                                                                                                                                                                               1950
                                                                                                                                                                                                                                                                                                                                                                                                         2010
                                  442
                                                                                                                                                                 502
                                                                                                                                                                                                                                                                                                562
                                                                                                                                                                                                                                                                                                                                          582
                                                                                                                                                                                                                                                                                                                                                                                     602
                                                                                                                                                                                                                                                                                                                                                                                                                               622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:
                                               8 4 8 4 8 4 8 4 8
                                                                                                                                                                                                                                                                                              8 8 8
                                                                                                                                                                                                                                                                                                                                                         四次 四次 四次 四
              용
                                 8
```

311 534 331

474

351

654

594

391

774 411 834

714

431

894

451

```
1432 GGTGGCGAGATCCTACCTCCACCATCCCCTGGTGCTGTTCTTGGCTTCTCGAAGAGCACA 1491
                                                                                                                                                                                                                                                                                                      IleSerArgValHisHisArgHisLeuValSerLeuValGlyTyrCysIleAlaGlyAla 342
                                                                                                                                                                                                                                                                                                                                                                                                                                                 LysArgLeuLeuValTyrGluPheValProAsnAsnAsnLeuGluLeuHisLeuHisGly 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAGAGGCTGCTTGTCTATGAGTTTGTCCCCAATAACACATTGGAATTCCACTTACATGCG 1791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnValTyrVal 482
                                                                                                           HisvalvalThrSerLeuPro---ProProLysAlaProSerProProArgGlnPro
                                                                                                                                                                                                                                                                                                                                                                      LysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GluGlyArgProThrMetGluTrpSerThrArgLeuLy8IleAlaLeuGlySerAlaLy8
                                                                                                                                     TyrGlyGlyGlnGlnGlnGlnTrpArgGlnGlnAsnAla-----ThrProProSerAsp
                                                                                                                                                                                           CATGTGGTCAAGATGCACCCTTCGCCTCCGCCAGCATAGCCAATCGTCTCCACAGCCG
                                                                                                                                                                                                                             GCACCTGAGTATGCATCTTCTGGCAAGCTAACAGAAAAATCCGATGTATTTTCCTTCGGA
                                                                                             GluGluAspAlaTyrTyrValProProProProProProProClyProLysAlaGlyGlyPro
                                                                                                                                                                                                                ProProProProProProPheMetSerSerSerGly-----GlySerAspTyrSer
                                                                                                                                                                                                                                                     AspArgProValLeuProProProSerProGlyLeuValLeuGlyPheSerLysSerThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyLeuSerTyrLeuHisGluAspCysAsnProLysIleIleHisArgAspIleLysAla
                                                                                                                                                                                                                                                                                          PheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AlaProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPheSGrPheGly
85
18
9
                                      US-10-086-464-2 (1-647) x US-10-425-114-33030 (1-2880)
Mismatches:
Indels:
Gaps:
69.80%
53.08%
13
  Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1852
                                                                                                                  1198
                                                                                                                                     188
                                                                                                                                                                          206
                                                                                                                                                                                             1312
                                                                                                                                                                                                                 225
                                                                                                                                                                                                                                   1372
                                                                                                                                                                                                                                                      243
                                                                                                                                                                                                                                                                                                                                  283
                                                                                                                                                                                                                                                                                                                                                    1552
                                                                                                                                                                                                                                                                                                                                                                       303
                                                                                                                                                                                                                                                                                                                                                                                         1612
                                                                                                                                                                                                                                                                                                                                                                                                             323
                                                                                                                                                                                                                                                                                                                                                                                                                               1672
                                                                                                                                                                                                                                                                                                                                                                                                                                                  343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2092
                                                                                                                                                                                                                                                                                            263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              383
         Query Match:
DB:
  Local
                                                        ò
                                                                      셤
                                                                                         ઠે
                                                                                                            g
                                                                                                                                  ò
                                                                                                                                                 요 요
                                                                                                                                                                                       a
                                                                                                                                                                                                                8 8
                                                                                                                                                                                                                                              ઠ
                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                    ठे
                                                                                                                                                                                                                                                                                                        엄
                                                                                                                                                                                                                                                                                                                            8 6
                                                                                                                                                                                                                                                                                                                                                                 8 8
                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                         ያ ያ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   용
                                                                                                                                                                                                                                                                                                                                                                                                                                              1485
                                                                                                                                                                                                                                                                                                                                                                     1486 rcedefrecaargaadaaageredefracagregeracagereagereagaracagedaagec 1545
                                                       CGCCGACCAGTTGACACAACCCAAACATATATGGATGACAGCTTGGTTGACTGGGCAAGG 1074
                                                                                                                            GGAAAGGACTTCAATCCTAATGAGATGGCAAGAATGATGATAGCCTGTGCAGCTGCATGTGTA 1194
                                                                                                                                                                ProLeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAlaLysMet 511
                                                                                                                                                      ArgHisSerAlaArgArgArgProArgMetSerGlnIleValArgAlaLeuGluGlyAsn 551
                                                                                                                                                                                                                                  TyrGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMetLysLysPheArg 591
                                                                                                                                                                                                                                                                        LysMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnProThrSer 611
                                                                                                                                                                                                                                                                                                              612 AspTyrGlyLeuTyrProSerGlySerSerSerGluGlyGlnThrThrArgGluMetGlu 631
                                                                                                                                                                                                                                                                                                                                                    632 MetGlyLysIleLysArgThrGly-------GlnGlyTyrSerGlyPro 645
                                      ArgArgProValAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAlaArg 491
                                                                                                                                                                                            ValSerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsnValTyrSerSer 571
            CTAACAGAAAAATCTGATGTATTTTCCTTCGGAGTCATGCTTCTTGAGCTTATTACTGGG
                                                                                                                                                                                                                                                                                                                          :::|||||||
GAATATGGACAGATACCGTCTGCATCAAGCAGCGAGGGCCACCAGACGAGGAGGAGATGGAG
                                                                                                               AsnAsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAlaAlaAlaCysVal
LeuThrGluLysSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThrGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2880
356
51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OTHER INFORMATION: Clone ID: UC-ZMFLMO17055B11_FLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2.81e-110
1833.00
79.80%
                                                                                                                                                                                                                                                                                                                                                                                                           TCG 1548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: DNA
ORGANISM: Zea mays
                                                                                                                                                                                                                                                                                                                                                                                         Ser 646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-425-114-33030
                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-425-114-33030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alignment Scores:
                                                       1015
                                                                                             1075
                                                                                                                                    1135
                                                                                                                                                                                                                                   572
                                                                                                                                                                                                                                                      1315
                                                                                                                                                                                                                                                                                          1372
                   955
                                     472
                                                                           492
                                                                                                                 512
                                                                                                                                                                         1195
                                                                                                                                                                                            552
                                                                                                                                                                                                                1255
                                                                                                                                                                                                                                                                        592
                                                                                                                                                                                                                                                                                                                                 1426
                                                                                                                                                                                      $ B $ B $ B $
                              8 6 8 6
                                                                                                          8 6 8 6
                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                   8 6
                                                                                                                                                                                                                                                                                                                                                                                  8 8
8 6
```

1671

382

402

322

2091

462

1431

262

282

242

1371

```
1139
                                1199
                                                188
                                                                  1256
                                                                                  206
                                                                                                  1313
                                                                                                                   225
                                                                                                                                   1373
                                                                                                                                                                                                    1493
                                                                                                                                                                                                                                      1553
                                                                                                                                                                                                                                                                       1613
                                                                                                                                                                                                                                                                                        323
                                                                                                                                                                                                                                                                                                        1673
                                                                                                                                                                                                                                                                                                                         343
                                                                                                                                                                                                                                                                                                                                         1733
                                                                                                                                                                                                                                                                                                                                                          363
                                                                                                                                                                                                                                                                                                                                                                          1793
                                                                                                                                                                                                                                                                                                                                                                                                            1853
                                                                                                                                                                                                                                                                                                                                                                                                                            403
                                                                                                                                                                                                                                                                                                                                                                                                                                            1913
                                                                                                                                                                                                                                                                                                                                                                                                                                                             423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 503
                                                                                                                                                                                     263
                                                                                                                                                                                                                      283
                                                                                                                                                                                                                                                       303
                                                                                                                                                                                                                                                                                                                                                                                           383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               483
          8 6 6 6
                                                                               ò
                                                                                           성 음
                                                                                                                              g
                                                                                                                                                  ò
                                                                                                                                                               g
                                                                                                                                                                              ઠે
                                                                                                                                                                                                 g
                                                                                                                                                                                                               ል &
                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                      상 원
                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                               Sequence 33031, Application US/10425114
; Sequence 33031, Application US/20040034888A1
; Sequence 33031, Application No. US20040034888A1
; GENERAL INFORMATION:
; APPLICANT: Liu, Jingdong
; APPLICANT: Zhou, Yihua
; APPLICANT: Adoals, Jack E
; APPLICANT: Tabaska, Jack E
; APPLICANT: Cao, Yongwei
; TITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associated With
; TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
; FILE REFERENCE: 38-21(53333)B
; CURRENT FILING DATE: 2003-04-28
; SEQ ID NOS: 73128
; SEQ ID NOS 33031
LENTH: 2881
                                                                                                                                                                                                                     2562
                                                2271
                                                                                  2331
                                                                                                                                           542
                                                                                                                                                                   TyrAsnGluAspMetLysLysPheArgLysMetAlaLeuGlyThrGlnGluTyrAsnAla 602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuVallleValThrLeuIleCysLeuLeuCys-----LysLysLysArgArgArgAsp 167
                                            ATGATAGCCTGTGCAGCTGCATGTGTACGCCATTCTGCACGTCGTCGCCACGTATGAGT
                                                                                                                                                                             MetValalaCysAlaAlaAlaCysValArgHisSerAlaArgArgArgProArgMetSer
                                                                                                                                                                                                                                               AspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAsp
                               PheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArg
                                                                                                                                   ProGlyGlnSerAsnValTyrSerSerTyrGlyGlySerThrAspTyrAspSerSerGln
                                                                                                                                                                                                     ThrGlyGluTyrSerAsnProThrSerAspTyrGlyLeuTyrProSerGlySerSer
                                                                                                                                                                                                                                      GluGlyGlnThrThrArgGluMetGluMetGlyLysIleLysArgThrGly-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2881
356
51
85
18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; OTHER INFORMATION: Clone ID: UC-ZMFLMO17055B12_FLI
US-10-425-114-33031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         x US-10-425-114-33031 (1-2881)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                     2623 GGCTACAGCTCAGGATACAGCGGAGCCTCG 2652
                                                                                                                                                                                                                                                                       -----GlnGlyTyrSerGlyProSer 646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.81e-110
1833.00
79.80%
69.80%
53.08%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-086-464-2 (1-647)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: DNA
ORGANISM: Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment Scores:
                                                2212
                                                                                                                                                                                                     603
               2152
                                                                                  2272
                                                                                                                  2332
                                                                                                                                                    2392
                                                                                                                                                                                    2449
                                                                                                                                                                                                                     2503
                                                                                                                                                                                                                                                       2563
                                503
                                                                  523
                                                                                                                                   563
                                                                                                                                                                    583
                                                                                                                                                                                                                                      623
                                                                                                                                                                                                                                                                        640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          150
183
                                                                                                  543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
                                                                                                                                                                                                                                                                                                        RESULT
US-10-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score:
                               8 4 8 4 8 4 8 4
          a
                                                                                                                                                                                              8 6
                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
ઠ
```

1312 1432 1372 1492 1552 1852 SerAsnileLeuileAspPheLysPheGluAlaLysValAlaAspPheGlyLeuAlaLys 422 |||||||||||||||||| TCTAACATTCTTCTTGACTTCCAATTTGAAGCTAAGGTTGCTGACTTTGGACTTGCAAAG 1972 AAGAGGCTGCTTGTCTATGAGTTTGTCCCCAATAACACATTGGAATTCCACTTACATGCG 1792 262 282 442 242 LysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIle 322 IleSerArgValHisHisArgHisLeuValSerLeuValGlyTyrCysIleAlaGlyAla 342 GludlyArgProThrMetGluTrpSerThrArgLeuLyBIleAlaLeuGlySerAlaLyB 382 402 ValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnValTyrVal 482 LysArgLeuLeuValTyrGluPheValProAsnAsnAsnLeuGluLeuHisLeuHisGly 362 PheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMetAlaArg 522 TyrGlyGlyGlnGlnGlnGlnTrpArgGlnGlnAsnAla-----ThrProProSerAsp rrcaccraccaagagcrerrcagggcracrgarggarrcrcggargcraarcrccrrgga Targeregaaceraccagaerreg---cagcaaaarececcrecrecrecrecresaa HisValValThrSerLeuPro---ProProProLysAlaProSerProArgGlnPro 243 AspArgProValLeuProProProSerProGlyLeuValLeuGlyPheSerLysSerThr GlyLeuSerTyrLeuhisGluAspCysAsnProLysIleIleHisArgAspIleLysAla | IleAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeu GluGluAspAlaTyrValProProProProProProGlyProLysAlaGlyGlyPro ProProProProProProPheMetSerSerSerGly-----GlySerAspTyrSer PheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeuGly

ω

120

306

246

357

145

477

185

567

537

205

671

221

731

```
GACTCATCATCATCGCCACCACCTGATTCCACATCTCCACCACCACACAGCTCCTAAC 189
                                                                                                                                                                                                                                                                           GlyValAlaLeuLeuValIleValThrLeuIleCygLeuLeuCygLygLygLygArg 165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -GlySerAspTyrSer----AspArgProValLeuProProSerProGlyLeuVa 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     nLeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLy 375
                                                                                                                                                                                                                                                              ProSer-----SerSerProSerProProSerPro----SerSerAsp 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AACCAATAT-----CAATACTA-TGGAAACAACAACAACAACAACAATGCTTCACAGAA 617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----ArgGln-ProProProProProProProPheMetSerSerGly---- 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTCTTCCATGIACTCAGGCCCATCAGGCCCAGTTTTACCTCCTTCGCCTGCTCTAGC 791
                       ACCTCTTCTCCG-----CCGGCTCCGTCTCCTCCTTCTCCTACACCTCCTCAAGGA 129
                                                                                                                                                                      GCTGGACTTTTGATGATCGTTCTTATTATTGTCTTTAGACGCAAAAAGAAGAAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTGGGGGGGGGGGGCCTCCTCCTCCTCCTGCGATGCCTACAGCGGAAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         eSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrValHisLysGlyValLeuPr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 uPheGlnAlaGluValGluIleIleSerArgValHisHisArgHisLeuValSerLeuVa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ThrileProThrSerProProSerSerArgSerThrProSerAlaProProSer
                                                                                                     ProProThrProSerThrProGlySerProProProLeuProGlnProSerProProAla
                                                                                                                              cerceraar - - - recreamaacrerecerrecerrecerradages
                                                                                                                                                                                                            SerValProGlyProProSerAsnProSerArgGluGlyGlySerProArg----Pro
                                                                                                                                                                                                                                                                                                               ------LeuSerThrGlyValValValGlyIleAlaileGly
                                                                                                                                                                                                                                                                                                                              ArgaspGluGluAspAlaTyrTyrValProProProProProGlyProLysAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                ------crearcetrerac------cereaaccetreaadda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlyProTyrGlyGlyGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       255 lieuGlyPheSerLysSerThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCTCGGATTCAACAAGAGCACTTTAACTTACCAAGAGGTTGCGGCTGCAACAGGAGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         oSerGlyLysGluValAlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             335 lGlyTyrCyslleAlaGlyAlaLysArgLeuLeuValTyrGluPheValProAsnAsnAs
ThrProProProAlaSerAlaProProProThrThrProSerSerProProProProSer
                                                                                                                                                        ProThrThrProGlySerProProAlaProValThrProProThrArgAsnProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HisValValThrSerLeuProProProProLysAlaProSerProPro----
                                                                                                                                                                                                                                                                                                                  Gly
23
                                                  43
                                                                                                                                                         83
                                                                                                                                                                                   247
                                                                                                                                                                                                                                     307
                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                        358
                                                                                                                                                                                                                                                                                                                  133
                                                                                                                                                                                                                                                                                                                                            418
                                                                                                                                                                                                                                                                                                                                                                     146
                                                                                                                                                                                                                                                                                                                                                                                                                        991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             요
                                         à
                                                                   셤
                                                                                                  à
                                                                                                                       8 S
                                                                                                                                                                           g
                                                                                                                                                                                                 5 8
                                                                                                                                                                                                                                                     8686
                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                     요
                                                                                                                                                                                                                                                                                                                                                                                                              ⋧
                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
               셤
                                         CCTGGCCATAGCCGCTTCTTTGGGTCATAC---AGCAGCTCCGATTACGATTCTGGCCAG 2449
                                                                                                                                                                                 TATGATGCTTTAGTGGATCCTCGGCTGGGAAAGGACTTCAATCCTAATGAGATGGCAAGA 2272
                                                                           GlnIleValArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArg 562
                                                                                                                               ProGlyGlnSerAsnValTyrSerSerTyrGlyGlySerThrAspTyrAspSerSerGln 582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCTGCTCCTCCAACAACTCCACCTCTTCTCCCATCTCCACCGTCTAATACCAATTCAACC 78
                                                                                                                                                                                                                                                     ThrGlyGluTyrSerAsnProThrSerAspTyrGlyLeuTyrProSerGlySerSer
                                                                                                                                                                                                                                                                                        GluglyGlnThrThrArgGluMetGluMetGlyLysIleLysArgThrGly-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThrThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 10, Application US/10066464
; Publication No. US20020199218A1
; GENERAL INFORMATION:
; APPLICANT: GORING, Daphne R. et al.
; TITLE OF INVENTION: PROLINE-RICH EXTENSIN-LIKE RECEPTOR KINASES; FILE REFERENCE: P 25,762-A USA; CURRENT APPLICATION NUMBER: US/10/086,464
; CURRENT APPLICATION NUMBER: US/10/086,464
; CURRENT FILING DATE: 2002-02-28
; PRIOR APPLICATION NUMBER: US 0/069,304
; PRIOR FILING DATE: 2000-08-18
; PRIOR FILING DATE: 1099-08-19
; PRIOR FILING DATE: 1999-08-19
; PRIOR FILING DATE: 1999-10-13
; NUMBER OF SEQ ID NOS: 27
; SOFTWARE: Patentin Ver. 2.1
; SEQ ID NO 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1902
367
81
141
55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-086-464-2 (1-647) x US-10-086-464-10 (1-1902)
                                                                                                                                                                                                                                                                                                                                            646
                                                                                                                                                                                                                                                                                                                                                                      2624 GGCTACAGCTCAGGATACAGCGGAGCCTCG 2653
                                                                                                                                                                                                                                                                                                                                            ------GlnGlyTyrSerGlyProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: DNA
ORGANISM: Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1748.50
69.67%
57.08%
50.64%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .. (1902)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: CDS
LOCATION: (1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; LOCATION: (1)
US-10-086-464-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alignment Scores:
                                                 2273
                                                                                                     2333
                                                                                                                                                                                                              2450
                                                                                                                                                         2393
                                                                                                                                                                                                                                      603
                                                                                                                                                                                                                                                                2504
                                                                                                                                                                                                                                                                                         623
                                                                                                                                                                                                                                                                                                                  2564
                                                                                                                                                                                                                                                                                                                                            640
                                                                            543
                                                                                                                               563
                                                                                                                                                                                   583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local
                                                                   8 6 8 6
                                                                                                                                                                                                                                                                                                          ద
                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                         各
                                                                                                                                                                                  6 8 6
                                                                                                                                                                                                                                                       엄
                                                                                                                                                                                                                                                                                        ઠે
               ò
```

1031

335

275

851

295

911

315

```
749 TTCTTCCATGTACTCAGGCCCATCACGCCCAGTTTTACCTCCTCCTTCGCCTGCTTAGC 808
                                                                                                                                                                                         US-10-086-464-2 (1-647) x US-10-086-464-9 (1-1939)
                                                          ; ORGANISM: Arabidopsis thaliana
US-10-086-464-9
                                                                                                       5.99e-105
1748.50
69.67%
57.08%
50.64%
            SOFTWARE: Patentin Ver. SEQ ID NO 9
                                                                                                                                Percent Similarity:
Best Local Similarity:
  NUMBER OF SEQ
                                                                                             Alignment Scores:
                                   LENGTH: 1939
                                                                                                                                                                                                                                                               23
                                                                                                                                                                                                                                                                                                                                                            63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        585
                                              TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                         103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           238
                                                                                                                                                        Query Match:
DB:
                                                                                                         Pred. No.:
                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                             ઠ
                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ਨੇ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ઠે
                                                                                                                                                                                                                                                   1451
                                                                                                                                                                                                                                                                                        GATGGGAACTTTCGGATATCTAGCTCCAGAATATGCTTCAAGCGGTAAATTAACCCGAGAA 1391
                                                                                                                                                                                                                                                                                                                                                                                              CAACCCGCAAGAAATGGCTCGAATGGTGACTTGTGCCGCTGCTAGCATTCGTCATTCGGG 1628
                                                                                                                                                                               455
                                                                                                                                                                                                                                                                         lAspAlaAsnAsnValTyrValAspAspSerLeuValAspIrpAlaArgProLeuLeuAs 495
                                                                                                                                                                                                                            sSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThrGlyArgArgProVa 475
                                                                                                                                                                                                                                         ATCCGATGTTTTCTCTTACGGAGTTATGTTATTGGAACTTATAACTGGAAAAGGACCGGT
                                                                                             rAspArgGluGluMetAlaArgMetValAlaCysAlaAlaAlaCysValArgHisSerAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               elleHisArgAspIleLysAlaSerAsnIleLeuIleAspPheLysPheGluAlaLysVa
                                                                                                                                lalaaspPheGlyLeualaLysIlealaSerAspThrAsnThrHisValSerThrArgVa
                                                                                                                                                                                                                                                                                                                                                                                                                      aArgArgArgProArgMetSerGlnIleValArgAlaLeuGluGlyAsnValSerLeuSe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Grccaeccaacarreccagrcagrcagrcagascaacarcragrargarreragasa
                                                                                                                                                                               lMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   rAspleuAsnGluGlyMetArgProGlyGlnSerAsnValTyrSerSerTyrGlyGlySe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  rThraspTyraspSerSerGlnTyrasnGluaspMetLysLysPheArgLysMetAlaLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                uGlyThrGlnGluTyr-----AsnAlaThrGlyGluTyrSerAsnProThrSerAs
                                                                                                                                                                                                                                                                                                                          nArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 9, Application US/10086464

Fublication No. US20020199218A1

GENERAL INFORMATION:

APPLICANT: GORING, Daphne R. et al.

TITLE OF INVERTION: PROLINE-RICH EXTENSIN-LIKE RECEPTOR KINASES
FILE REFERENCE: P 25,765-A USA

CURRENT APPLICATION NUMBER: US/10/086,464

CURRENT FILING DATE: 2002-02-28

PRIOR APPLICATION NUMBER: US 10/069,304

PRIOR FILING DATE: 2002-02-19

PRIOR FILING DATE: 2000-08-18

PRIOR PLICATION NUMBER: PCT/CA00/00966

PRIOR APPLICATION NUMBER: US 60/149,466

PRIOR PLING DATE: 1999-10-13

PRIOR FILING DATE: 1999-10-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1869 TATGGGA 1875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               pTyrGly 614
                                                          1152
                                                                                                                                                                                                     1332
                                                                                                                                                                                                                                                                           475
                                                                                                                                                                                                                                                                                                                          495
                                                                                                                                                                                                                                                                                                                                                 1509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                612
             1092
                                                                                                         1212
                                                                                                                                415
                                                                                                                                                                              435
                                                                                                                                                                                                                                                   1392
                                                                                                                                                                                                                                                                                                  1452
                                                                                                                                                                                                                                                                                                                                                                         515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  575
                                                                                 395
                                                                                                                                                                                                                             455
                                                                                                                                                                                                                                                                                                                                                                                                                      535
                                                                                                                                                                                                                                          음 중
                                                                                                a
                                                                                                                               음 성
                                                                                                                                                                     챵
                                                                                                                                                                                               a
                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                                                                      유
                                                     원 장
                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                           원
                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                           유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
```

```
689 TTGGGGAGGCGGTGGACCATCACCGCCTCCTCCTCCGCGATGCCTACAAGCGGAAAGA 748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -GlySerAspTyrSer----AspArgProValLeuProProProSerProGlyLeuVa 255
                                                                                                                                                                                                                                                                                                                                                                                                                                           ProSer-----SerProSerProSerPro----SerSerAsp 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCTGGACTTTTGATGATCGTTCTTATTGTGTGTCTTAGACGCAAAAAGAAGAAAA 554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       186 GlyProTyrGlyGlyGlnGlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAsp 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      324 rcr-----ccrccrrcraggagraarggagaraargcrgragcagarcarcccca 374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             146 GlyValAlaLeuLeuValIleValThrLeuIleCygLeuLeuCygLygLygArgArg 165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ------CAATACTA-TGGAAACAACAACAACAACAATGCTTCACAGAA 634
                                                                                                                                                                                                                                                                                                                 ThrProProProAlaSerAlaProProProThrThrProSerSerProProProSer 42
                                                                                                                                                                                                                                                                                                                                             43 ThrileProThrSerProProPerSerArgSerThrProSerAlaProProProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SerValProGlyProProSerAsnProSerArgGluGlyGlySerProArg-----Pro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProProThrProSerThrProGlySerProProProLeuProGlnProSerProProAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCTCCTAAT---TCCTCTAATAACTCTCCTTCCCCTCACAGGGCGGTGGAGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        83 ProThrThrProGlySerProProAlaProValThrProProThrArgAsnProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ------GACTCCTTCTAC-------CCTGAACCCATGAAAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           166 ArgAspGluGluAspAlaTyrTyrValProProProProProProGlyProLysAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----ArgGln-ProProProProProProProPheMetSerSerGly----
                                                                                                                                                                                                                     SerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HisValValThrSerLeuProProProProLysAlaProSerProPro------
  1939
367
81
141
55
Length:
Matches:
Conservative:
Mismatches:
Indels:
```

263

82

120

185

584

221

237

146

95

6 B 6 B 6 B 6

8 6

8 8 8 8

a

8 6

8686

g

6 8 6

д

셤

ઠે

셤

ò

8 8

ò

5 G ò

```
Sequence 9117, Application US/10425114

Sequence 9117, Application US/10425114

Publication No. US2004003488A1

GENERAL INVORMATION:

APPLICANT: Zhou, Yihua

APPLICANT: Screen, Steven E

APPLICANT: Apabaka, Jack E

APPLICANT: Cao, Yongwei

TITLE OF INVENTION: Nucleic, Acid Molecules and Other Molecules Associated With

TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement

FILE REFERENCE: 38-21(53313)B

CURRENT FILING DATE: 2003-04-28

NUMBER OF SEQ ID NOS: 73128

SEQ ID NO 9117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SerArgvalHisHisArgHisLeuvalSerLeuvalGlyTyrCysIleAlaGlyAlaLys 343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LeuSerTyrLeuHisGluAspCysBanProLysIleIleHisArgAspIleLysAlaSer 403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGCCGTGTCCATCACAAGCATCTTGTTTTGTTTGGATACTGCATCCACTGGGTCCCAG 371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ArgleuLeuValTyrGluPheValProAsnAsnAsnLeuGluLeuHisLeuHisGlyGlu 363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAATTGAAGGCTGGAAGCGGCAAGGGGAGCGTGAATTCCAAGCTGAAGTTGAGATAATT 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProProProProProPheMetSerSerGly-----GlySerAspTyrSerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLysGluValAlaValLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySerAlaLysGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGGAGACCTACCATGGATTGGCCCACAAGACTAAGAATTGCTTTAGGATCTGCTAAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGluIleIle
                                                                                                                                                                                                                                                                                                                                                                                                           1424
331
47
41
7
                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-086-464-2 (1-647) x US-10-425-114-9117 (1-1424)
                                                                                                                                                                                                                                                                                                                                                        ID: 700833950_FLI
                                                                                                                                                                                                                                                                                                                                                                                                           2.31e-104
1737.50
88.73*
77.70$
50.32$
                                                                                                                                                                                                                                                                                                                                                      OTHER INFORMATION: Clone
614
                                                                                                                                                                                                                                                                                                                                max
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity:
Query Match:
DB:
                         TATGGGA
                                                                                                                                                                                                                                                                                                                TYPE: DNA
ORGANISM: Glycine
pTyrGly
                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                      JS-10-425-114-9117
                                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores:
                                                                                                                                                                                                                                                                                                     1424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         364
612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              384
                                                                                                                                                                                                                                                                                                                                             FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                             Pred. No.:
à
               용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                       TTTGGAATATCATCTTCATGGGAAAAATCTTCCGGTAATGGAGTTCTCCACTAGGTGCG 1168
                                                                                                                                                                                                                                                                                                                                                                                                              GATGGGAACTTTCGGATATCTAGCTCCAGAATATGCTTCAAGCGGGTAAATTAACCGAGAA 1408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ||||||| ||| ||| |||:::|||
TCGCGCGCTAGAAAGATGGAAACTTTAATGAGCTCGCAGATGCGAGGCTTGAAGGCAACTA 1585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | :::||||||| :::
GTCGAGCCAAGAATTCCCAGTCAGTGACGGAACATCTAGTAATGATTCTAGAGA 1885
                                                                 295
                                                                                                                                    335
                                                                                                                                                                                                                              335 1GlyTyrCyslleAlaGlyAlaLysArgLeuLeuValTyrGluPheValProAsnAsnAs 355
                                                                                                                                                                                                                                                                                     375
                                                                                                                                                                                                                                                                                                                                       435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            rAspArgGluGluMetAlaArgMetValAlaCysAlaAlaCysValArgHisSerAl 535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         575
                                      868
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  lAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAlaArgProLeuLeuAs 495
        SSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThrGlyArgArgProVa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              aArgArgArgProArgMetSerGlnIleValArgAlaLeuGluGlyAsnValSerLeuSe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        uPheGlnAlaGluValGluIleIleSerArgValHisHisArgHisLeuValSerLeuVa
                                                                                                                                                                                                                                                                                     nLeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrpSerThrArgLeuLy
                                                                                                                                                                                                                                                                                                                                                                                                elleHisArgAsplleLysAlaSerAsnIleLeuIleAspPheLysPheGluAlaLysVa
                                                                                                                                                                                                                                                                                                                                                                                                                                                   lAlaAspPheGlyLeuAlaLysIleAlaSerAspThrAsnThrHisValSerThrArgVa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         lMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         rAspleuAsnGluGlyMetArgProGlyGlnSerAsnValTyrSerSerTyrGlyGlySe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              rThrAspTyrAspSerSerGlnTyrAsnGluAspMetLysLysPheArgLysMetAlaLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 uGlyThrGlnGluTyr-----AsnAlaThrGlyGluTyrSerAsnProThrSerAs
                                                                                                                      oSerGlyLysGluValAlaValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        nArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTy
                                                                eSerGluAlaAsnLeuLeuGl
                                                                                                                                                                                                                                                         1049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    475
                                                                                                                                                                                                                                                                                                               1109
                                                                                                                                                                                                                                                                                                                                                                     1169
                                                                                                                                                                                                                                                                                                                                                                                                                         1229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         555
                                   809
                                                                                           869
                                                                                                                      295
                                                                                                                                               929
                                                                                                                                                                          315
                                                                                                                                                                                                    989
                                                                                                                                                                                                                                                                                     355
                                                                                                                                                                                                                                                                                                                                          375
                                                                                                                                                                                                                                                                                                                                                                                                395
                                                                                                                                                                                                                                                                                                                                                                                                                                                    415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    595
```

383

491

283

191 303 251

263 131

```
SerProArgProProSerSerProSerProSerProSerSerAspGlyLeuSerThr 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CysLeuLeuCysLysLysLysArgArgArgAspGluGluAspAla------Tyr 172
                                                                                                                                                                                                                                                                                                                                                ||||||| :::||||||||| ||| ||| ||||| ACTCCTGTAACGCCATCACCGGAAAGACCA 354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    355 ACTCCTCCTCCTGGTGCCAATGATGACGGAAACAGAACCAATGGCGGAAACAACAAC 414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ||| |||||||| :::::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGCATCTGTTGCAACAGGAAGAAGAAGAAATCTCCTCAGGTCAACCACATGCACTAC 627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TyrvalProProProProProGlyProLysAla --- GlyGlyProTyrGlyGlyGln 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlnGlnGlnTrpArgGlnGlnAsnAlaThrProProSerAspHisValValThrSerLeu 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                212 ProProProProLysAlaProSerProProArgGlnProProProProProProPro 231
                                                                                                                                                                                                                                                                                                                                                                                                                                           -------ProGln-----Thr 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ThrProGlySerProProAla --- ProValThrPro------ ProThrArgAsn 99
                                                                                                                                                                                                                                                                                        GTAGCTAATCCGTCACGCAGACTCCAGAGAATCCTTCTCCCACCTGCACCTGAAGGCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               41 ProSerThrIleProThrSerProProProSerSerArgSerThrProSerAlaProPro
                                                                                                                                                                                                                                                                                                                                                                                                                124 TCATCA-----ATATOTGCTOCTOCICGCCAGATATOTOCOCTTOTITIOACOCÓC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlyvalvalvalglylleAlalleGlyGlyValAlaLeuLeuVallleValThrLeuIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TACAATAACAATCCTTATGGAGGAGCACCCTCAGGTAATGGTGGTGGTTATTACAAGGGA---
                                                                                                                                                                                                                                                                                                                                21 ThrThrThrProProProAlaSerAlaProProProThrThrProSerSerProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCG------GGGCTT-------TTGCTTCTACTTGCAGTGTATT
                                                                                                                                                                                                                                                                           MetSerSerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2025
368
87
1142
1114
                                                                                                                                                  Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                               US-10-086-464-2 (1-647) x US-10-086-464-13 (1-2025)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100 ProProPro------
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 13
LENGTH: 2025
TYPE: DNA
ORGANISM: Arabidopsis thaliana
                                                                                                                                                  6.22e-101
1687.00
63.99%
51.76%
48.86%
                                                                                              ; LOCATION: (1)..(2025)
US-10-086-464-13
                                                                                                                                                                        Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                  FEATURE:
NAME/KEY: CDS
                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 628
                                                                                                                                                     Pred. No.:
                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                                                                    엄
                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                         8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        원
장
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         а
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1149 AGTGAGTACAGTGCCGCTACAAGTGAGTATGGTTTAAACCCATCAGGCTCAAGTAGTGAA 1208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1089 AAGGAAGACATGAAAAAGTTCAGGAAAATGGCATTGGGAACTCAGGAGTATGGTGCAAGC 1148
                            AsnIleLeuIleAspPheLysPheGluAlaLysValAlaAspPheGlyLeuAlaLysIle 423
                                                                                                          671
                                                                                                                                     ProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPheSerPheGlyVal 463
                                                                                                                                                                                                                                                                                                                                 911
                                                                                                                                                                                                                                                                                                                                                          ValAlaCysAlaAlaCysValArgHisSerAlaArgArgArgProArgMetSerGln 543
                                                                                                                                                                                                                                                                                                                                                                                                                544 IleValArgAlaLeuGluGlyAsnValSerLeuSerAspLeuAsnGluGlyMetArgPro 563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlyGlnSerAanValTyrSerSerTyrGlyGlySerThrAapTyrAapSerSerGlnTyr 583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            584 AsnGluAspMetLysLysPheArgLysMetAlaLeuGlyThrGlnGluTyrAsnAlaThr 603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlyGluTyrSerAsnProThrSerAspTyrGlyLeuTyrProSerGlySerSerSerGlu 623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gly------GinThrThrArgGluMetGluMetGlyLysIleLysArgThrGlyGln 640
                                                                                                                                                                731
                                                                                                                                                                                            ValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnValTyrValAsp 483
                                                                                                                                                                                                                       791
                                                                                                                                                                                                                                                                           851
                                                                                                                                                                                                                                                                                                     GluGlyLeuAlaAspAlaLy8MetAsnAsnGlyTyrAspArgGluGluMetAlaArgMet 523
                                                                                                                                                                                                                                                                                                                                                                                      971
                                                                                               TCTTCTGATGTCAATACCCATGTTTCTACTCGAGTGATGGGGGACTTTTGGGTATTTGGCT
                                                                                                                                                     CCAGAATATGCTTCTAGTGGAAAACTCACAGACAAATCAGATGTTTTCTCCTATGGAATC
                                                                                                                                                                                                           GTGGCTTCTGCTGCGGCTTGCATACGTCATTCGGCAAAGCGTCGACCAAGGATGAGCCAG
  AspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAlaSerGluGlnGlyAspPhe
                                                                                                                                                                                                                                                             AlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGlyTyrLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 13, Application US/10086464
; Sequence 13, Application US/10086464
; Publication No. US2020199218A1
; GENERAL INFORMATION:
   APPLICANT: GORING, Daphne R. et al.
; TITLE OF INVENTION: PROLINE RICH EXTENSIN-LIKE RECEPTOR KINASES
; FILE REFERENCE: P 25,762 A USA
; CURRENT APPLICATION NUMBER: US/10/086,464
; PRIOR APPLICATION NUMBER: US 10/069,304
; PRIOR FILING DATE: 2002-02-19
; PRIOR PILING DATE: 2000-08-19
; PRIOR APPLICATION NUMBER: US 60/149,466
; PRIOR APPLICATION NUMBER: US 60/149,466
; PRIOR PILING DATE: 1999-08-19
; PRIOR PILING DATE: 1999-08-19
; PRIOR PILING DATE: 1999-10-13
; NUMBER OF SEQ ID NOS: 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1266 GGTTTCAGTGGAAGTTCT 1283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          641 GlyTyrSerGlyProSer 646
                                                       552
                                                                                                          612
                                                                                                                                                                672
                                                                                                                                                                                            464
                                                                                                                                                                                                                       732
                                                                                                                                       444
                                                                                                                                                                                                                                                                                                                                                             524
                            404
                                                                                 424
                                                                                                                                                                                                                                                484
                                                                                                                                                                                                                                                                           792
                                                                                                                                                                                                                                                                                                      504
                                                                                                                                                                                                                                                                                                                                 852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       624
                                                                                                                                                                                                                                                                                                                                                                                      912
                                                                                                                                                                                                                                                                                                                                                                                                                                           972
                                                 셤
                                                                       જે
                                                                                                  g
                                                                                                                                8 8 8
                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                 원장
                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                          8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                    음 중 음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8 & 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8 8
                        ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  કે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
```

474

534 156 567 684

102

174

9

40

20 72 234

----GAA 1986

```
1768 GGAGATATGTCAATGGATGATCTAAGTGAGGGAACAAGACCAGGACAAAGCACGTACTTG 1827
                                                                  PheArglysMetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnPro 609
                                                                                                            610 ThrserAspTyrGlyLeuTyrProSerGlySerSerGluGlyGlnThrThrArgGlu 629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTAGCTAATCCGTCACCGCAGACTCCAGAGAATCCTTCTCCCACCTGCACCTGAAGGCTCA 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----ProSerThrProGlySerProProProLeu 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerSerTyrGlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMetLysLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            41 ProSerThrIleProThrSerProProProSerSerArgSerThrProSerAlaProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                160 rearca-----ararcrecrecrecedenareredecrerrerreaded
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----ProSln----Thr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21 ThrThrThrProProProAlaSerAlaProProProThrThrProSerSerProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MetSerSerAlaProSerProGlyThrGlySerProProSerProProSerAsnSerThr
                                                                                                                                                                                                            Sequence 12, Application US/10086464
; Sequence 12, Application US/10086464
; Publication No. US20020199218A1
; GENERAL INFORMATION:
; APPLICANT: GORING, Daphne R. et al.
; TILLE OF INVENTION: PROLINE-RICH EXTENSIN-LIKE RECEPTOR KINASES
; FILE REFREENER: US/10/086,464
; CURRENT APPLICATION NUMBER: US/10/069,304
; PRIOR APPLICATION NUMBER: US 10/069,304
; PRIOR APPLICATION NUMBER: PCT/CA00/00966
; PRIOR APPLICATION NUMBER: BCT/CA00/00966
; PRIOR APPLICATION NUMBER: US 60/149,466
; PRIOR APPLICATION NUMBER: US 60/149,466
; PRIOR FILING DATE: 1999-08-19
; PRIOR FILING DATE: 1999-10-13
; NUMBER OF SEQ ID NOS: 27
; SQPTWARE: Patentin Ver. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2104
368
87
142
114
25
                                                                                                                           1942 ACAAGTGAGTATGGCTTAAAACCCTTCTGCTTCAAGTAGTGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                         |||| :::|||||| |||| ATGAATGCTCAG 2019
                                                                                                                                                           630 MetGluMetGlyLysIleLysArgThrGlyGln 640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-086-464-2 (1-647) x US-10-086-464-12 (1-2104)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProSerProProThr-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: DNA ORGANISM: Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6.45e-101
1687.00
63.99%
51.76%
48.86%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment Scores:
Pred. No.:
Score:
                                                                                                                                                                                                       RESULT 11
US-10-086-464-12
                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH: 2104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       , ORGANISM: Ar
US-10-086-464-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                       570
                                                                   590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match:
DB:
                                      ద
                                                                                                                                요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                8
                                                                                   g
                                                                                                            8
                                                                                                                                                          ò
                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                જે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1410
                                                                                                                                                                                                                                                                                                                                                                            1230
                                                                                                                                                                                                                                                                                                                                                                                                                        1290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1767
                                                                                                                                                                                                                                         GGGGAACGCGAGTTTCAAGCAGAGGTTGATATCATTAGCCGTGTCCATCATCGTCATCTC 1050
                                                                                                                                                                                                                                                                           440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            391
                                                                                                                                                                                                                                                                                                                                                                                                                                              420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   549
                                                                                                                                                                                   351
                                                                                                                                                                                                                                                                                                          ProAsnAsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrpSer 371
                                                                                                                                                                                                                                                                                                                                                                                                  ------AsnProLysilelleHisArgAspile 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PheGlyValValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnVal 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GlyAmnValSerLeuSerAmpLeuAsnGluGlyMetArgProGlyGlnSerAmnValTyr 569
                                                                               271
                                                                                                                          291
                                                                                                                                                                       311
                                                                                                                                                                                                                    331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrValHisLys
                                                                                                                                                                     GlyValLeuProSerGlyLysGluValAlaValLysGlnLeuLysValGlySerGlyGln
                                                                                                                                                                                                                   GlyGluArgGluPheGlnAlaGluValGluIleIleSerArgValHisHisHisLeu
                                                                                                                                                                                                                                                              ValSerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuValTyrGluPheVal
                                                                                                                                                                                                                                                                                                                                                       ThrArgLeuLysIleAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCys
                                                                                                                                                                                                                                                                                                                                                                   LysAlaSerAsnIleLeuIleAspPheLysPheGluAlaLysValAlaAspPheGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                            TyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGluLysSerAspValPheSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PheMetSerSerGlyGlySerAspTyrSerAspArgProValLeuProProSer
                                                ProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGluLeuAlaArgAla
                                                                                           ---GCTGCAACTCTTGGTCACAACCAAAGCACTTTCACATACGATGAACTGTCCATTGCA
                                                                                                                                               ACAGAAGGITTCGCTCAGTCAAATTTGCTAGGACAAGGAGGATTTGGGTATGTTCATAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AlaArgMetValAlaCysAlaAlaAlaCysValArgHisSerAlaArgArgArgProArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----IleValArgAlaLeuGlu
 GCTGGTCAAGGAGGTGGGAATTGGGGTCCACAGCAACCTGTGTCTGGTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MetSerGln-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1411
                                                                                                                                                                                                                                                                                                                                                                             1171
                                                                                                                                                                                                                                                                                                                                                                                                    392
                                                                                                                                                                                                                                                                                                                                                                                                                         1231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1708
            712
                                 232
                                                                               252
                                                                                                                                               871
                                                                                                                                                                       292
                                                                                                                                                                                            931
                                                                                                                                                                                                                   312
                                                                                                                                                                                                                                         991
                                                                                                                                                                                                                                                                 332
                                                                                                                                                                                                                                                                                     1051
                                                                                                                                                                                                                                                                                                           352
                                                                                                                                                                                                                                                                                                                                 1111
                                                                                                                                                                                                                                                                                                                                                       372
                                                                                                                                                                                                                                                                                                                                                                                                                                              401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                550
                                                                                                                          272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            501
                                                                                                                                           8 8
                                                                                                                                                                                     셤
                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                   8 & B
                                                                                                                                                                                                                                                                                                    6 6 6 6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                               8 & 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8 6 6 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8 G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                           ò
                                                  셤
                                                                            à
                                                                                             8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
```

210

9

40

270

401 1327 421 1387 441 1447	461 1507 481 1564	Db 1624 GGAGATTACAACCAA Qy 521 AlaArgMetValAla Db 1684 GTTCAAATGGCTTCT Oy 541 MetSCAGIn	Db 1744 ATGAGCCAGGTTCAA Qy 550 GlyAsnValSerLeu Qy 550 GlyAsnValSerLeu :::::		RESULT 12 US-10-424-599-57846 ; Sequence 57846, Application; Publication No. US200400310; GENERAL INFORMATION: APPLICANT: Kovalic David; APPLICANT: Kovalic David; APPLICANT: Zoo Willia APPLICANT: Cao Yongwei; TITLE OF INVENTION: Soy Nu; TITLE OF INVENTION: Plant; TITLE OF INVENTION: Plant	; FILE KEFERENCE: 38-ZI153Z ; CURRENT PILING DATE: 200 ; NUMBER OF SEQ ID NOS: 285 ; SEQ ID NO 57846 ; LENGTH: 2655 ; TYPE: DNA ; ORGANISM: Glycine max ; FEATURE:
	117 SerProArgProProSerSerProProSerProSerSerAspGlyLeuSerThr 136	CysLeuLeuCysLysLysLysArgArgAspGluGluAspAlaTyr : : : : : : : : : :	192 GINGINGINTEPARGGINGINABDAIATHTFPROSERSPHENDAIGHTREALGU 211	799CACAGTGATGCTTCCAACTTAACCGGTCGAACTGCTATACGGTCACCTCAA 849 252 ProGlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGluLeuAlaArgAla 271 850GCTGCAACTCTTGGTCAACCAAAGCACTTTCACATACGATGAACTGTCCATTGCA 906 272 ThrAsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrValHisLys 291	GGAGTTCTGCCTAGTGGCDAAGGAGTTGCAGTGAAGGGTCTTAAACTTGGAAGTGGACAA G1yG1uArgG1uPheG1nAlaG1uVa1G1uI1eI1eSerArgVa1HisHisArgHisLeu	1147 CCTAACACACTCTTGAATTTCATCATGGAAAGGGTCGTCCGGTTTTGGATTGGCTT 1206 372 ThrArgLeulys1leAlaLeuGlySerAlaLysGlyLeuSerTyrLeuthisGluAspCys 391
86868	6 6 6 6	\$ 8 \$ 8 \$	68686	8 8 8 8 8 8 8	8 8 8 8 8 8	8 6 8 6 8

```
Nucleic Acid Molecules and Other Molecules Associated With nts and Uses Thereof for Plant Improvement 223) B ER: US/10/424,599 03.04-28
                                                                                                                  uuleuGluleulleThrGlyArgArgProValAspAlaAsnAsnVal 480
                                                                                                                                                                                                                                     ErLeuValaspTrpalaargProLeuLeuAsnargalaSerGluGln 500
                                                                                                                                                                                                                                                                                                |||||:::|||||||
TCTTCTTGATTTCAGTTTTGAGACCAAGGTGGCAGATTTTGGATTG 1386
                                                                            |||||| :::||||||| ::::: |||||||
|GTTAGAGAATAAGGATATCAAAGCAGT---GAATATGGTGGA--- 1977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----GAA 2022
eLeuIleAspPheLysPheGluAlaLysValAlaAspPheGlyLeu 420
                                                         srAspThrAsnThrHisValSerThrArgValMetGlyThrPheGly 440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | YSerThrAspTyrAspSerSerGlnTyrAsnGluAspMetLysLys 589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    aleuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnPro 609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               yLeuTyrProSerGlySerSerSerGluGlyGlnThrThrArgGlu 629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         scripaacccricigcricaagragigaa----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OTHER INFORMATION: Clone ID: PAT_MRT3847_23247C.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /slleLysArgThrGlyGln 640
:::||||||
:AaTGAAACGCAATCCTCAG 2055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 on US/10424599
.072A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ~ ×
```

	TATGCTGCTCCTTCCAGINGINTrpArgGInGINASnAlaThrProProSerAspHisValValThrSerLeuPro	roPz	TTGAGGCCGCAGTCTCCGCGC		253 GlyLeuValLeuGlyPheSerLysSerThrPheThrTyrGluGluLeuAlaArgAlaThr 272 	273 AsnGlyPheSerGluAlaAsnLeuLeuGlyGlnGlyGlyPheGlyTyrValHisLysGly 292 	293 ValleuProSerGlyLysGluValAlaValLysGlnLeuLysValGlySerGlyGlnGly 312 :::	313 GluargGluPheGlnAlaGluValGluIleIleSerArgValHisHisArgHisLeuVal 332 	333 SerLeuValGlyTyrCysIlealaGlyAlaLysArgLeuLeuValTyrGluPheValPro 352	353 AsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrpSerThr 372	373 ArgLeuLysIleAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCysAsn 392 ::: :::	393 ProLyslelleHisArgAspileLysAlaSerAsnileLeulleAspPheLysPheGlu 412	AlaLysValAlaAspPheGlyLeuAlaLysIleAlaSerAspThrAsnThrHisValSer	1649 GCICAAGITICGGACTITGGGCTTGCAAAATTGGCATTAGATTCAAATACACATGTAAAT 1708 433 ThratgyalMetGlyThrPheGlyTyrLeuAlaaryoGluTyrAlaAlaSegcJyLygLeu 452		453 INTGLUUYSSETABDVALTNESETRIBELIVALVALLEULEUGLUEULLEULLETITGIVALY */2	473 ArgProValAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAlaArgPro 492	493 LeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsn 512	1889 CTGTTGACGGAAGCACTTGACGACTTTGAGACTTTGAAATTTTGGTGGATCCAAGACTGGGG 1948 513 AenGlvTvaanarogluglumeralaarometValalacvaalaalaalaalacavavalaro 532	
q v	ବ୍ଜ ୪୪	8 &	du S	δ 6	ò a	oy da	S da	çy G	QY Ob	čo d	8 G	8 8	8 8	8	a :	À A	<i>₹</i> 6	δ	g &	5
Length: Matches:	t Similarity: 55.19% Conserv. ocal Similarity: 43.16% Mismatcl Match: 44.57% Indels: 13	-10-086-464-	Db 19 CATCHTCTCCCAACAAACACTTCCACCCCACCATCACCACCTCTCTCAGCTT 154	Qy 20ThrThrThrThrProProProAlaSerAlaProProProThrThr 34	Qy 35 ProSerSerProProProProSerThrIleProThrSerProProProSerSer 52	53 ArgSerThrProSerAlaProProProSerProProThrProSerThrPro :::	7.9 GlySerProProProLeuPro	79 SerProProAlaProThrThrProGlySerProProAlaProValThrProProThrArg	99 ABDPTOPTOBETORING TO THE PROPERTY OF THE PR	117 SerProArgProProSerSerPro	125 SerProProSerProSer	130	Db 626 GAAAATCCACCAAAAACTACTCCTTCACATGCATCTCCTCCATCAGTTTCTGAAACTCCT 685 Qy 130 130	686 CCTAAAACCTCCTTCCTCTGATGTTCCCCCTCCATCCACTTGCCTTCAACTCCTTCA	QY 130 130 Db 746 GACCCTTCAGGATCTTCACCTCCAGCTTCTTTGCCTGATCCCCCAACTAATAAAACAGTG 805	130	DD 806 GIGGGGGGCICCGAAGGIGICGCIACCCICICICTCCAACIGAGAAACCCACIGCIAGACCI 865 Qy 131SerAspGlyLeu 134	Db 866 ACTAATGATGGTACTAACAGTATGTCTTCAAACAACACACCTTCACATTCTGGAGGGTTG 925	926 AGCACTGGAGGATCTGTGGAATTGTAGTTGTTGTTTATTGTCCTCAGCCTTTTTT	Oy 153 ValThrLeulleCysLeuLeuCysLysLysArgArgArgAspGluGluAspAlaTyr 172

AAGAACTACGAT HisSeralaarg : :	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	
Oy 632 tGlyLyslleLysArgThrGlyGlnGly 641	g &	s66 †CTCCTCCTCCGGCCAATTTTCCAAGGCCACCAACCACTAGAACTCCTCCAGAGAAA 625
SES S S G D	qa & qa	626 GAAAATCCACCAAAAACTACTCCTTCACATGCATCTCCTCCATCAGTTTCTGAAACTCCT 685 130
APPLICANT: Zhou, Yihua ; APPLICANT: Zhou, Yihua ; APPLICANT: Screen, Steven E ; APPLICANT: Tabaska, Jack B ; APPLICANT: Cao, Yongwei ; TITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associated With ; TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement	8 8 8	130
FILE REFERENCE: 38-21(53313)B CURRENT APPLICATION UMBER: US/10/425,114 CURRENT FILING DATE: 2003-04-28 NUMBER OF SEQ ID NOS: 73128 SEQ ID NO 7339 LENGTH: 2655 TYPE: DNA TYPE: DNA FEATURE: FEATURE: FEA	\$ 6 \$ 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	ACTAATGATGGTACTAACAGTATGTCTTCAAACAACACCTTCACATTCTGGAGGGTTG SerThrGlyValvalvalGly1leAla1leGlyGlyValAlaLeuLeuValI1e
/s OTHER INFORMATION: Clone ID: 700652889_FLI US-10-425-114-7339 Alignment Scores: 3.37e-91 Length: 2655 Score: 1539.00 Matches: 341 Percent Similarity: 55.19\$ Conservative: 95 Best Local Similarity: 43.16\$ Mismatches: 141 Query Match: 13 Indels: 13	8 8 8 8 8	ValThrLeuIleCysLeuLeuCysLysLysLysArgArgArgArgAspSluGluAspAlaTyr
-2 (1-647) x US-10-425-114-7339 (1-2655) SerSerAlaProSerProGlyThrGlySerProProSerProProSerAsnSer ::: :::	40 60 60 60	1064TTTACCTCATCCCACAATTCAGGTACCTTATTC 1096 213 ProProProLysAlaProSerProProArgGlnProProProProProProProProPer 232 1097 TTGAGGCCGCAGTCTCCGGCC
98 20 155	oy Ob	233 MetSerSerGlyGlySerAspTyrSerAspArgProValLeuProProProSerPro 252
35 ProSerSerProProProProSerThrIleProThrSerProProProSerSer	රු අ _ධ රු .	253 GlyLeuValleuGlyPheSerLysSerThrPheThrTyrGluGluLeuAlaArgAlaThr 272

With

à

```
ProProSerProSerSerAspGlyLeuSerThrGlyValValValGlyIleAlaIleGly 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       473 TCATCGTCGGATAATACAGCCGCTGTGATCACCGGCGTGGTGCTTGGGGTG---GTGGGC 529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               302 GCTTTGGCGCCCAAAATCATCTTCA----AAGTCACCTCGCCACCAAAGGGTGAATCA 355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              86 ProGlySerProProAlaProValThrProProThrArgAsnProProSerValPro 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |||||||
TCTCCTTCTCCCTCCATCACCTGCAGCGAAAAGGAAAAGGGTGTCAGACCGTAACTA 121
                                                                                                         APPLICANT: Liu, Jingdong
APPLICANT: Liu, Jingdong
APPLICANT: Zhou, Yihua
APPLICANT: Screen, Steven E
APPLICANT: Screen, Steven E
APPLICANT: Tabaska, Jack E
APPLICANT: Tabaska, Jack E
APPLICANT: Tabaska, Jack E
APPLICANT: Tabaska, Jack E
APPLICANT: Tabaska, Jack E
APPLICANT: Nongweil
TITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associated V
TITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associated V
TITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associated V
TITLE OF INVENTION: Number and Uses Thereof for Plant Improvement
CURRENT APPLICATION NUMBER: US/1/0/425,114
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 73128
LENGTH: 2190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            182 TCTCCTTATTCGGAGGAAGAGCTCCATCCTCATTCTACAAGACCAAACCAATAAATGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 ATGATGCCTTCTTCCCTCCTCATTCTCGCTCGCCCCATTCCACCTTCGACGACGACCCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       122 AGAGCTATTTAGCAATAATACATACATAGCTATACCCTCTTTAGGTCAAGAGGGTGGAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  46 ThrserProProSerSerArgSerThrProSerAlaProProSerProProThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 66 ProSerThrProGlySerProProProLeuProGlnProSerProProAlaProThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       113 AAAAGTGCTAGTACATCTAGCTCTAAAGATGGGAAGACGAAGAAGTCGTCTTCATCGTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          106 GlyProProSerAsnProSerArgGluGlyGlySerProArgProProSerProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ---ProThrThrProSerSerProProProSerThrIlePro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SerProProSerAsnSerThrThrThrThrProProAlaSerAlaProPro-
                                                                                                                                                                                                                                                                                                                                                                                                                                               2190
331
80
167
87
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-086-464-2 (1-647) x US-10-425-114-14127 (1-2190)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MetSerSerAlaProSerProGlyThrGlySerProPro
                                                                                                                                                                                                                                                                                                                                                                                  , OTHER INFORMATION: Clone ID: LIB148-034-D5_FLI
US-10-425-114-14127
   2252 TCCCAAAATAAAA---CTGGGCATGGGA 2276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels:
                                                             ; Sequence 14127, Application US/10425114; Publication No. US20040034888A1
; GENERAL INFORMATION:
; APPLICANT: Liu, Jingdong
                                                                                                                                                                                                                                                                                                                                                                                                                                            1.11e-84
1437.50
61.90%
49.85%
41.63%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                      ORGANISM: Zea mays
                                               US-10-425-114-14127
                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       32
                                                                                                                                                                                                                                                                                                                                       TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                             1348
                                                                                                                                                                                                           1468
                                                                                                                                                                                                                                                                      1528
                                                                                                                                                                                                                                                                                                                                     1588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2008
                                                                                                                                              1408
                                                                                                                                                                                                                                                                                                                                                                                       ACACGTGTAATGGGAACCTTTGGGTACATGGCACCAGAATATGCGACAAGTGGAAAACTT 1768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |||||||| ::::::
|TITTGACGGAAGCACTTGACAATGAGGACTTTGAAATTTTGGTGGATCCAAGACTGGGG 1948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2009 CACTCATCGGTGAAGAGACCACGCATGAGTCAGGTGAGGTGAGAGCTTTAGATTCCTTGGAT 2068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ---GAGATCACGACCCAACAACTGTCTTC 2251
                                                                                                              332
                                                                                                                                                                                                                                         372
                                                                                                                                                                                                                                                                                                                                                                      412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            632
                                                                                                                                                                           SerLeuValGlyTyrCysIleAlaGlyAlaLysArgLeuLeuValTyrGluPheValPro 352
                                                                                                                                                                                                                                                                                                      ArgleuLysIleAlaLeuGlySerAlaLysGlyLeuSerTyrLeuHisGluAspCysAsn 392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ArgProvalAspAlaAsnAsnValTyrValAspAspSerLeuValAspTrpAlaArgPro 492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuLeuAsnArgAlaSerGluGlnGlyAspPheGluGlyLeuAlaAspAlaLysMetAsn 512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TIGCTGATAGATGGAAGAGAAGTAGCTGTGAAACAGCTCAAAATTGGTGGTGGGCAAGGG
                                                                                                                               GAACGCGAATTCAGGCCAGAAGTTGAGATTATTAGCCGTGTACATCATCGTCTTCATCTCGGTT
                                                                                                                                                                                                                                                         ProLysileileHisArgAspileLysAlaSerAsnileLeuileAspPheLysPheGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaLy8ValAlaAspPheGlyLeuAlaLysIleAlaSerAspThrAsnThrHisValSer
|||:::||||:::|||||||||||||||||:::|||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACTGAAAAGTCTGATGTATATTCTTTTGGGGTTGTCTTTTGGAGCTAATTACAGGTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       513 AsnGlyTyrAspArgGluGluMetAlaArgMetValAlaCysAlaAlaAlaCysValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1949 AAGAACTACGATAGAAATGAATGTTTCGGATGATCGAGGCTGCCGCAGCCTGTGTACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerLeuSerAspLeuAsnGluGlyMetArgProGlyGlnSerAsnValTyrSerSerTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ValLeuProSerGlyLysGluValAlaValLysGlnLeuLysValGlySerGlyGlnGly
                                                                                                              GluArgGluPheGlnAlaGluValGluIleIleSerArgValHisHisArgHisLeuVal
                                                                                                                                                                                               AsnAsnAsnLeuGluLeuHisLeuHisGlyGluGlyArgProThrMetGluTrpSerThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ThrargvalMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGlyLysLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ThrGluLysSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThrGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HisSerAlaArgArgProArgMetSerGlnIleValArgAlaLeuGluGlyAsnVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2069 GAGTTTACGGATCTCAATAACGGAATGAAACCGGGACAGAGTTCGGTG-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyGlySerThrAspTyrAspSerSerGlnTyrAsnGluAspMetLysLysPheArgLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MetAlaLeuGlyThrGlnGluTyrAsnAlaThrGlyGluTyrSerAsnProThrSerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Tyr-GlyLeuTyrProSerGlySerSerSerGluGlyGlnThrArgGluMetGluMe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tGlyLyslleLysArgThrGlyGlnGly 641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ::: | | | :::
TGGAGGAGTA----
                                                                                                                                                                                                                                                                                                                                                                                                    1589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2216
                1229
                                               293
                                                                               1289
                                                                                                              313
                                                                                                                                            1349
                                                                                                                                                                           333
                                                                                                                                                                                                           1409
                                                                                                                                                                                                                                         353
                                                                                                                                                                                                                                                                      1469
                                                                                                                                                                                                                                                                                                      373
                                                                                                                                                                                                                                                                                                                                     1529
                                                                                                                                                                                                                                                                                                                                                                                                                                    413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        632
                                                                                                                                                                                                                                                                                                                                                                      393
                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                             엄
                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         엄
                                                                        셤
                                                                                                             ò
                                                                                                                                  g
                                                                                                                                                                ò
                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
```

125 472

181

3

13 61 45

241

65

301

8 6 8 6 8 6 8 6 8 6

	RESULT 15 US-10-425-114-6300 Sequence 6300, Application US/10425114 Publication No. US20040034888A1 GENERAL INFORMATION: APPLICANT: Liu, Jingdong APPLICANT: Kovalic, David K. APPLICANT: Screen, Steven E APPLICANT: Tabaska, Jack E APPLICANT: Jack E APPLICANT: Jack E APPLICANT: Jack E APPLICANT: Jack E APPLICANT: Jack E APPLICANT: Jack E APPLICANT: Jack E APPLICA	Alignment Scores:
146 GlyValAlaLeuLeuVall1eValThrLeuIleCysLeuLeuCysLysLysLysLysArgArg 165	275 eSerGlublaAsnLeuLeuGlydlnGlyGlyPheGlyTyrValHisLysGlyValLeuPr 295	394 \$IleIleHisArgAspIleLysAlaSerAsnIleLeuIleAspPheLysPheGluAlaLy 414 1258 GATCATCCACCGCCACATCACGCCCAACATCTCGAGGCCAT 1317 414 \$ValAlaAspPheGlyLeuAlaLysIleAlaSerAspThrAsnThrHisValSerThrAr 434 1318 GGTGGCGGACTTCGGGTGCCAAGGCTCACGAGGCACGTCTCCACGCG 1377 434 \$ValMetGlyThrPheGlyTyrLeuAlaProGluTyrAlaAlaSerGlyLysLeuThrGl 454 1378 GGTGGGGACTTCGGGTGCCGAGGCTCAGGCGCACGTCTCCACGCG 1377 454 ulysSerAspValPheSerPheGlyValValLeuLeuGluLeuIleThrGlyArgArgPr 474 1438 CAGGTCGAACGTTTCGGCTCAGGCGCCGGGGGGCCCGCC 1497 474 oValAspAlaAshAsnValTyrValAshSpSerLeuValAspTrpAlaArgProLeuLe 494 11::

ઠે

8 & B

፟

음 상 음

```
::::::|||||||||:::
ATTAAGCCGGGGCAAAATGTTGCTTACAACTCTTCATCTAGCTCAGATCAGTATGACACA 1159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MetArgProGlyGlnSerAsnValTyrSerSerTyrGlyGlySerThrAspTyrAspSer 580
                                                                     262
                                                                                                                   322
                                                                                                                                                         442
                                                                                                                                                                                                                                                                502
                                                                                                                                                                                                                                                                                        381
                                                                                                                                                                                                                                                                                                              562
                                                                                                                                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                                                                                                                          682
                                                                                                                                                                                                                                                                                                                                                                                                                                   441
                                                                                                                                                                                                                                                                                                                                                                                                                                                         742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LeuAlaProGluTyrAlaAlaSerGlyLygLeuThrGluLysSerAspValPheSerPhe 461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ValAspAspSerLeuValAspTrpAlaArgProLeuLeuAsnArgAla---SerGluGln 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlyAspPheGluGlyLeuAlaAspAlaLysMetAsnAsnGlyTyrAspArgGluGluMet 520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 920 GGCAACTITGGAGAGTIGGTIGATGCATTITTAGAGGGAAACTACGATCCTCAAGAACTG 979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           521 AlaArgMetValAlaCysAlaAlaAlaCysValArgHisSerAlaArgArgArgProArg 540
                                               281
                                                                                             301
                                                                                                                                           ValLysGlnLeuLysValGlySerGlyGlnGlyGluArgGluPheGlnAlaGluValGlu 321
                                                                                                                                                                                                                                        AlalysArgLeuLeuValTyrGluPheValProAsnAsnAsnLeuGluLeuHisLeuHis 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyvalValLeuLeuGluLeuIleThrGlyArgArgProValAspAlaAsnAsnValTyr 481
243 AspArgProVal---LeuProProProSerProGlyLeuValLeuGlyPheSerLysSer 261
                                                                                                                                                                                                                                                                                                                                                                                   ACGGGACCGGCCCCGTTGCCTCCTCCTCAAACGGGGC
                                                           ThrPheThrTyrGluGluLeuAlaArgAlaThrAsnGlyPheSerGluAlaAsnLeuLeu
                                                                                             GlyGlnGlyGlyPheGlyTyrValHisLysGlyValLeuProSerGlyLysGluValAla
                                                                                                                                                                                                                                                                                        GlyGluGlyArgProThrMetGluTrpSerThrArgLeuLysIleAlaLeuGlySerAla
                                                                                                                                                                                                                                                                                                    LysileAlaSerAspThrAsnThrHisValSerThrArgValMetGlyThrPheGlyTyr
                                                                                                                                                                                                                                        342
                       143
                                                                     203
                                                                                                                                                                                                                 383
                                                                                                                                                                                                                                                                                                               503
                                                                                                                                                                                                                                                                                                                                       382
                                                                                                                                                                                                                                                                                                                                                              563
                                                                                                                                                                                                                                                                                                                                                                                    402
                                                                                                                                                                                                                                                                                                                                                                                                                                                         683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        561
                                               262
                                                                                                                   263
                                                                                                                                            302
                                                                                                                                                                   323
                                                                                                                                                                                                                                                                                        362
                                                                                                                                                                                                                                                                                                                                                                                                            623
                                                                                                                                                                                                                                                                                                                                                                                                                                   422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 442
                                                                                             282
                                                                                                                                                                                          322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             501
```

8 6 8 6

6 B 6 B 6 B 6

Search completed: May 13, 2004, 03:06:24 Job time : 728 secs

```
GenCore version 5.1.6
Copyright (c) 1993 - 2004 Compugen Ltd.
```

OM nucleic - nu	OM nucleic - nucleic search, using sw model
Run on:	May 12, 2004, 14:53:24 ; Search time 7358 Seconds (without alignments) 11451.326 Million cell updates/sec
Title: Perfect score: Sequence:	US-10-086-464-1 1944 1 atgiccicggcgcgtctccatagtggaccttctcttaa 1944
Scoring table:	OLIGO_NUC Gapop_60.0 , Gapext 60.0
Searched:	3470272 seqs, 21671516995 residues
Word size :	,
Total number of	Total number of hits satisfying chosen parameters: 6940544
Minimum DB seq Maximum DB seq	Minimum DB seq length: 0 Maximum DB seq length: 2000000000
Post-processing	Post-processing: Listing first 45 summaries
Database :	GenEmbl:* 1: gb_ba:* 2: gb_htg:* 3: gb_in:* 4: gb_ow:* 5: gb_ov:* 6: gb_pat:* 7: gb_ph:* 8: gb_pat:* 10: gb_r:* 11: gb_r:*

gb sts: *
gb sy: *
gb sy: *
gb vi: *
em ba: *
em hum: *
em nu: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
em or: *
e

Pred. No. is the number of results predicted by chance to have a

score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

Description	AX088876 Sequence AX825703 Sequence AX825705 Sequence AX975705 Sequence		BT008409 Arabidops AY128792 Arabidops AY056788 Arabidops	AY093065 Arabidops	AF370509 Arabidops AB020746 Arabidops	AY089024 Arabidops AP000382 Arabidops	AX825736 Sequence AX059540 Sequence	AC124968 Medicago AC012477 Genomic S	AC012392 Genomic S	AKI09201 Orygan sat	AK070323 Oryza sat	AP004622 Oryza sat G12716 sWSS2029 Er	AF213398 Ovis arie	AXS46184 Sequence	AX546187 Sequence AY224526 Oryza Bat	AXS46185 Sequence	UOSBIB HUMAN ACTIV U19348 Human (tpr-	AY091180 Arabidops AY064019 Arabidops	i "	AB118945 Canis ram X54559 Homo sapien	AX546174 Sequence	o N	. 4	AB112434 bos tauru AC004416 Homo sapi		inear PAT 17-MAR-2001		m my my my me and and my my me and and and my my my my my my my my my my my my my	ij billotychiyca; itacheckiyca; /ledons; core eudicots; /sicaceae; Brassica.	nases
SUMMARIES DB ID	6 AX8055703 6 AX825703 6 AX825703									AK109201		-												AB11 AC00	ALIGNMENTS	1944 bp DNA	639	6	ipianicae; streptopnyta; ignoliophyta; eudicotyle II; Brassicales; Brassi	l Silva,N. extensin-like receptor kinases
Length	1944	1959	1959 2098 2116	2188	2257	2324 80393	1515	107826	183147	898	1922	88450 256	450	897	897 1185	1281	1620 2016	3142	3677	4419 4586	4620	4626	4626	4823 32173		, c	GI:J	18 (1	a; Mé	and ch
% Query e Match	i	. e. e.	m m m	w	. e. c	4 4		بنا	.i.		-i -i		-i-	i		н,	.i .i	-i -	i	.i .	; ;;	≓.	i	.i .i		AX088876	AX088876 AX088876.1		Eukaryoca; v Spermatophyta rosids; euro	Goring, D. Proline-ri
Result No. Score	1 1944 2 1944 3 1944	<u>n</u>			1 CV FM		16	യത	20	757	ባጭ	o o	۲.	0 01	0 1	21.0	₩ 4 1	ın v		യ മ	n 0	C		4. C		RESULT 1 AX088876 LOCUS AX		KEYWORDS . SOURCE B1 ORGANISM B1		REFERENCE I AUTHORS GO TITLE PI

N

```
GCTGTGAAGCAGTTGAAAGTTGGGAGTCAGGGAGAGAGGAGTTTCAGGCAGAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAGATCATCAGCAGAGTTCACCACAGGCATCTGGTGTCTCTTGTTGGTTATTGCATCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCTAAAGGACTTTCTTATCTTCATGAAGATTGCAATCCTAAAATCATTCACCGTGATATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTTGGCGTTGTGCTTTTGGAGCTCATTACTGGACGTCGACCGCGTTGATGCCAATGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATGAGACCAGGTCAAAGCAATGTATACAGCTCATACGGAGGAAGCACCGATTATGACTCG
ACACCACCGTCAGATCATGTCGTGACGTCACTACCACCACCTAAGGCTCCATCTCCA
                                      CCACGGCAACCTCCACCTCCACCACCGCCTTTCATGAGCAGCAGCGGCTCCGAC
                                                             CCACGGCAACCTCCTCCACCTCCACCGCCTTTCATGAGCAGCAGCGGGGGCGCTCCGAC
                                                                                                                    TACTCGGACCGTCCAGTTCTTCCTCCACCGTCTCCAGGGCTTGTGTTAGGCTTCTCCAAA
                                                                                                                                       AGCACTTTCACATACGAGGAGCTAGAGCCACCAATGGTTTCTCCGAGGCGAACTTG
                                                                                                                                                                                                                                                                                                          TTAGGACAAGGCGGGTTCGGTTACGTGCACAAAGGTGTTGCCTAGTGGGAAAGAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                       GAGATCATCAGCAGATTCACCACAGGCATCTGGTGTCTTGTTGGTTATTGCATCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGTGCCAAAGATTGCTTCTTTGATTTCTTCTTACTACAACAATCTCGAGCTTCACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGTGCCAAAAGATTGCTTGTCTATGAGTTTGTTCCTAACAACAATCTCGAGCTTCACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CATGGCGAGGGACGGCCTACAATGGAATGGAGCACCAGATTGAAGATTGCTCTTGGATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CATGGCGAGGGACGCCTACATGGAATGGAGCACCAGATTGAAGATTGCTCTTGGATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTAAAGGACTTTCTTATCTTCATGAAGATTGCAATCCTAAAATCATTCACCGTGATATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAGGCTTCAAACATATTGATAGATTTCAAGTTTGAAGCTAAGGTTGCTGATTTTGGTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAGGCTTCAAACATATTGATAGATTTCAAGTTTGAAGCTAAGGTTGCTGATTTTGGTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCTAAGATTGCTTCTGATACAAACACGCATGTATCAACACGTGTGATGGGAACCTTTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCTAAGATTGCTTCTGATACAAACACGCATGTATCAACACGCGTGTGTATGGAACCTTTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TACTTGGCTCCGGAATACGCTGCAAGCGGAAAGCTCACGGAGAAGTCTGACGTTTTCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TACTTGGCTCCGGAATACGCTGCAAGCGGAAGCTCACGGAGAAGTCTGACGTTTTCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TATGTAGATGA CAGCTTAGTTGACTGGGCACCATTGCTTAACCGAGCATCTGAGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TATGTAGATGACAGCTTAGTTGACTGGGCACGACCATTGCTTAACCGAGCATCTGAGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGAGACTTTGAGGGTTTAGCTGATGCAAAGATGAATAATGGGTATGACAGAGAGGAGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCTCGCATGGTTGCTTGTGCTGCGGCTTGTGTTCGCCATTCAGCTCGCCGCAGACCTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ecroecarectricarecrecectrications and acceptance ecroecarecrece ecroecarectrical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATGAGCCAGATTGTGCGTGCGTTAGAAGGAAATGTATCACTGTCAGATCTTAACGAAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGAGACCAGGTCAAAGCAATGTATACAGCTCATACGGAGGAAGCACCGATTATGACTCG
                                                                                                                                                                                                                                                                              TTAGGACAAGGCGGGTTCGGTTACGTGCACAAAGGTGTGTTGCCTAGTGGGAAAGAAGTT
                                                                                                                                                                                                                                                                                                                                                                                            TITGGCGITGTGCTITITGGAGCTCATTACTGGACGTCGACCCGTTGATGCCAACAATGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1681
                                                                               661
                                                                                                                    721
                                                                                                                                                         721
                                                                                                                                                                                                781
                                                                                                                                                                                                                                     781
                                                                                                                                                                                                                                                                              841
                                                                                                                                                                                                                                                                                                                    841
                                                                                                                                                                                                                                                                                                                                                         901
                                                                                                                                                                                                                                                                                                                                                                                                901
                                                                                                                                                                                                                                                                                                                                                                                                                                       961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1681
                                        661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   원
                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  원
장
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 원
                                                                   g
                                                                                                                                                   g
                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                        음
장
                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ⋧
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                            8
                                                                                                                  ò
                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                   / W. A. T. E. T. KERNIL KERNIL J. C. S. Y. Y. Y. S. A. T. E. T. KERNIL KERNIL J. S. Y. Y. S. A. T. E. T. KERNIL KERNIL J. S. Y. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y. S. Y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATGTCCTCGGCGCCGTCTCCGGGGACTGGTTCGCCTCCATCTCCACCATCAAACTCCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGTCCTCGGCGCCGTCTCCGGGGGACTGGTTCGCCTCCATCTCCACCATCAACTCCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCACCACTCCTCCTCCAGCTTCCGCTCCTCCTCCCACCACCTTCTTCTTCTCCTCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCACCACTCCTCCAGCTTCGGCTCCTCCTCCACCACCACCATCTTCTCTCCTCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCATCCACTATTCCGACATCTCCTCCTTCTTCTTCTCGCTCTACACCTTCTGCTCCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCATCCACTATTCCGACATCTCCTCCTCCTTCTTCTCGCTCTACACCTTCTGGCTCCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCATCTCCACCAACTCCATCTACGCCGGGATCTCCACCTCCTCTTCCTCAGCCGTCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCATCTCCACCAACTCCATCTACGCCGGGATCTCCACCTCCTCTTCCTCGAGCCGTCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCCGCTCCAACTACGCCCCGGATCTCCACCCGCACTGTTACTCCTACTCGAAACCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCCGCTCCAACTACGCCCGGATCTCCACCCGCACCTGTTACTCCTCCTACTCGAAACCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCACCTTCAGTCCCAGGACCACCGTCCAATCCTTCACGCGAAGGAGGAGGATCTCCTCGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCACCTTCAGTCCCAGGACCACCGTCCAATCCTTCACGCGAAGGAGGATCTCTCGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCATCTTCTCCCTCGCCGCCGTCTCCTTCTTCCGACGGTTTATCAACAGGAGTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGAATCGCCATCGGAGGAGTCGCTCTGCTTGTGATAGTGACTCTGATTTGTCTCCTCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAGAAGAAACGACGGAGAGAAGGAAGAAGATGCTTACTATGTTCCTCCGCCACCTCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAGAAGAAAACGACGGAGAGAAGAAGAAGATGCTTACTATGTTCCTCCGCCACCTCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGTCCCAAAGCCGGAGGACCTTACGGTGGACAGCAACAATGGCGGCAACAAACGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGTCCCAAAGCCGGAGGACCTTACGGTGGACAGCAGCAACAATGGCGGCAACAAAACGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 1944;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         . 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .;
0
                                                                                                                                                         'note="unnamed protein product"
codon start=1
'codon id="CAC34703.1"
db_xref="GI:13397640"
db_xref="REMTREMBL:CAC34703"
                      (S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 1944; I
Pred. No. 0;
; Mismatches
                                                                     /organism="Brassica napus"
/mol_type="unassigned DNA"
/db_xref="taxon:3708"
  WO 0114563-A 1 01-MAR-2001;
Daphne (CA); Silva, Nancy
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                      Goring,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Simi
Matches 1944;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local
                                                               Bource
    JOURNAL
                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   음 상
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
```

1080

1140 11200 1200 1260 1260 1320 1380

1440 1440 1500 1560

1680

1740

ઠે

1056 1116 ö 156 120 216 180 276 240 336 300 396 360 456 420 516 480 576 540 989 600 969 9 756 720 816 780 876 840 936 900 966 960 9 GAGATCATCAGCAGAGTTCACCACAGGCATCTGGTGTCTCTTGTTGGTTATTGCATCGCC CCATCTCCACCAACTCCATCTACGCCGGGATCTCCACCTCCTCCTCCTCAGCCGTCTCCA CCGGCTCCAACTACGCCCGGATCTCCACCCGCACCTGTTACTCCTCCTACTCGAAACCCT CCATCTTCTCCCTCGCCGCCGTCTCCTTCTTCCGACGGTTTATCAACAGAGTGGTGGTG GGTCCCAAAGCCGGAGGACCTTACGGTGGACAGCAACAATAGCGGGAACAAAAACGCA TACTCGGACCGTCCAGTTCTTCCTCCACCGTCTCCAGGGCTTGTTTAGGCTTCTCCAAA TTAGGACAAGGCGGGTTCGGTTACGTGCACAAAGGTGTTGCCTAGTGGGAAAGAAGTT ATGICCICGGCGCCGTCTCCGGGGACTGGTTCGCCTCCATCTCCACATCAAACTCCACA ACCACCACTCCTCCTCCAGCTTCCGCTCCTCCCACCACCACCTTCTTCTCCTCCGCCG ACCACCACTCCTCCTCCAGCTTCCGCTCCTCCTCCCACCACCACCTTCTTCTCTCCTCCGCCG CCATCCACTATTCCGACATCTCCTCCTTCTTCTCGCTCTACACCTTCTGCTCCTT CCATCCACTATTCCGACATCTCCTCCTCCTTCTTCTCGCTCTACACCTTCTGCTCCTCT CCCGCTCCAACTACGCCCCGGATCTCCACCCGCACCTGTTACTCCTCCTACTCGAAACCCT CCACCTTCAGTCCCAGGACCACGTCCAATCCTTCACGGAAGGAGGATCTCCTCGACCT CCACCTTCAGTCCCAGGACCACCGTCCAATCCTTCACGCGAAGGAGGATCTCCTCGACCT CCATCTTCTCCCTCGCCGCCGTCTTCTTCCGACGGTTTATCAACAGGAGTGGTGGTG GGAATCGCCATCGGAGGAGTCGCTCTGCTTGTGATAGTGACTCTGATTTGTCTCCTCTGT AAGAAGAAACGACGGAGAGAAGAAGATGCTTACTATGTTCCTCCGCCACCTCCT GGTCCCAAAGCCGGAGGACCTTACGGTGGACAGCAGCAACAATGGCGGCAACAAAACGCA CCACGGCAACCTCCTCCACCTCCACCGCCTTTCATGAGCAGCGGCGGCTCCGAC CCACGGCAACCTCCTCCACCTCCACCGCCTTTCATGAGCAGCAGCGGGGGGCTCCGAC TACTOGGACOGTOCAGTTCTTCCTCCACCGTCTCCAGGGCTTGTGTTAGGCTTCTCCAAA AGCACTITICACATACGAGGAGCTAGCTAGAGCCACCAATGGTTTCTCCGAGGCGAACTTG TTAGGACAAGGCGGGTTCGGTTACGTGCACAAAGGTGTGTTGCCTAGTGGGAAAGAAGTT GAGATCATCAGCAGAGTTCACCACAGGCATCTGGTGTCTTGTTGGTTATTGCATCGCC GGAATCGCCATCGGAGGAGTCGCTCTGCTTGTGATAGTGACTCTGATTTGTCTCTCTGT ö 2189 Length Indels ; 9 ; DB Score 1944; Pred. No. 0; 0; Mismatches

6 6 6 6 6 6

8 & 8

8 6 6 6

8 6 6 6

8 8 8

q

ઠે

8 6 8

දි දි

us-10-086-464-1.oli.rge

ORGANISM Brassica napus Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Eukaryota; Viridiplantae; Streptophyta; Eukaryophyta; Tracheophyta; Eukarophyta; Eukarophyta; Eukarotyledons; core eudicots; 1 (Shaes 1 to 2189) ATTHE Characterization of a novel Brassica napus receptor protein kinase PERKI and Goring, D.R. JOURNAL Unpublished JOURNAL Unpublished ATTHORS SILVA.N.F. and Goring, D.R. TITLE Submission ACTHORS SILVA.N.F. and Goring, D.R. TITLE Direct Submission Street, Toronto, Ontario M3J 183, Canada Location/Qualifiers Scheet, Toronto, Ontario M3J 183, Canada Location/Qualifiers FRATURES CDS CDS COGOO STATE ACTACLE "Exacus: 3708" AD XICE "Exacus: 3708" AD XICE "Exacus: 3708" AD XICE "Exacus: 3708" AD XICE "Exacus: 3708" AD XICE "Exacus: 3708" AD XICE "Exacus: 3708" AD XICE "Exacus: 3708" AD XICE "Exacus: 3708" AD XICE "Exacus: 3708" ACTREMBEDAYPERPREPREPREPREPREDRY EXACUSING PROPERTY ERIANATIVE PREPRIATE PROPERPREPREDRY EXACUSING PROPERTY	Querry Match 100.0%; Score 1944; DB 8; Length 2189; Best Local Similarity 100.0%; Pred. No. 0; Matches 1944; Conservative 0; Mismatches 0; Indels 0; Gaps 0; QV 1 ATGTCCTCGGGGCGTCTCGGGGACTGGTTCGCTCCATCCA
1021 GGTGCCAAAAGATTGCTTGTGTTTTTCTTACTTACAAACACATTCTCAAGCTTCACCTC 1080	1657 GTICGGANGGTIGCTIGGTIGGTIGGTIGGTIGGTIGGTIGGTIGGTI

RESULT 4
AY028699
LOCUS
DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE

ö

.. 0

PLN 15-MAY-2003

SOURCE

```
Cheuk, R., Chen, H., Kim, C.J., Shinn, P., Bowser, L., Carninci, P., Cheuk, R., Chen, H., Kim, C.J., Shinn, P., Bowser, L., Carninci, P., Dale, J.M., Hayashizaki, Y., Hauan, V.W., Ishida, J., Jones, T., Kamiya, A., Karlin-Neumann, G., Kawai, J., Lam, B., Lin, J., Miranda, M., Nauyen, M., Onodera, C.S., Palm, C.J., Quach, H.L., Sakou, M., Sakoi, M., Southwick, A., Toriumi, M., Wong, C., Wu, H.C., Yamada, K., Yu, G., Yuan, S., Shinozaki, K., Davis, R.W., Theologis, A. and Ecker, J.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (bases it olss)

Cheuk, R., Chen, H., Kim, C.J., Shinn, P., Bowser, L., Carninci, P., Dale, J. M., Haysahizaki, Y., Hauan, W., Ishida, J., Jones, T.,

Narusaka, M., Karlin-Neumann, G., Kawai, J., Lam, B., Lin, J., Miranda, M., Narusaka, M., Nguyen, M., Onodera, C.S., Palm, C.J., Quach, H.L., Sakurai, T., Satou, M., Seki, M., Southwick, A., Toriumi, M., Wong, C., Wu, H.C., Yamada, K., Yu, G., Yuan, S., Shinozaki, K., Davis, R.W., Arabidopsis, A. and Bcker, J.R.
                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission
Submitted (IS-MAY-2003) Salk Institute Genomic Analysis Laboratory
(SIGAL), Plant Biology Laboratory, The Salk Institute for
Biological Studies, 10010 N. Torrey Pines Road, La Jolla, CA 92037,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The Salk, Stanford, PGEC (SSP) Consortium members constructed and sequenced the pUNI (ORF) clones using the RAFL cDNAs: Cheuk, R., Chen, H., Kim, C.J., Shinn, P., Bowser, L., Chan, M.M., Chang, C.M., Dale, J.M., Hsuan, V.W., Jones, T., Karlin-Neumann, G., Lam, B., Lee, J.M., Miranda, M., Nguyen, M., Onodera, C.S., Palm, C.J., Quach, H.L., Southwick, A., Tang, C.C., Toriumi, M., Wong, C., Wu, H.C., Yamada, K., Yu, G., Yuan, S., Davis, R.W., Theologis, A., and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cheuk, R. (SSP/Salk) and Seki, M. (RIKEN GSC) contributed equally to this work. Shinozaki, K. (RIKEN GSC) and Ecker, J.R. (SSP/Salk) contributed equally to this work as PIs. Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
Bukaryota, Viridiplantae, Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RIKEN Genomic Sciences Center (GSC) members carried out the collection and clustering of RAFL cDNAs (RAFL cDNA : 'RIKEN tablidopsis Full-Length cDNA') : Seki,M., Narusaka,M., Ishida,J., Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai,J., Hayashizaki,Y. and Shinozaki,K.
                                                                                                                                                                                                                                                                                                                                          1432 AACAATGTCTATGTAGATGACAGCTTAGTTGACTGGGCACGACCATTGCTTAACCGAGCA
                                                                                                                                                                                                   Length 1959;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Arabidopsis thaliana At3g24600 gene, complete cds.
                                                                                                                                                                                                                                                                       0; Indels
                                                                                                                                                                                                   3.4%; Score 66; DB 8; Le
100.0%; Pred. No. 4.6e-24;
tive 0; Mismatches 0;
SSSEGQATREMEMGKIKKTGQGYSGPSL"
                                              /note="compared to genome"/replace="t"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BT008409.1 GI:30725491
                                                                                                                                                                                                                                                                          Conservative
                                   misc_difference 1920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1492 TCTGAG 1497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1507 rcread 1512
                                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 66; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 7
BT008409
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                  ઠે
                                                                                                                                                     Cheuk, R., Chen, H., Kim, C.J., Shinn, P., Bowser, L., Carninci, P., Dale, J. M., Hayashizaki, Y., Husan, V. W., Ishida, J., Jones, T., Kamiya, A., Karlin-Neumann, G., Kawai, J., Lam, B., Lin, J., Miranda, M., Narusaka, M., Nguyem, M., Onodera, C.S., Palm, C.J., Quach, H.L., Sakurai, T., Satou, M., Seki, M., Southwick, A., Toriumi, M., Wong, C., Wu, H.C., Yamada, K., Yu, G., Yuan, S., Shinozaki, K., Davis, R.W., Arabidopsis, A. and Ecker, J.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chauk, R., Chan, H., Kim, C.J., Shinn, P., Bowser, L., Carninci, P., Chen, H., Kim, C.J., Shinn, P., Bowser, L., Carninci, P., Chen, H., Kim, C.J., Shinn, P., Ishida, J., Jones, T., Kamiya, A., Karlin-Neumann, G., Kawai, J., Lam, B., Lin, J., Miranda, M., Narusaka, M., Nguyen, M., Onodera, C.S., Palm, C.J., Quach, H.L., Sakurai, T., Satou, M., Seki, M., Southwick, A., Toriumi, M., Wong, C., Wu, H.C., Yamada, K., Yu, G., Yann, S., Shinozaki, K., Davis, R.W., Theologis, A. and Ecker, J.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PKPPSPPRKPPPPPPPPPPMSSSGGSDYSDLPVLPPPSPGLVLGFSKSTFTYEELSRA
TNGFSEANLLGQGGFGYVHKGILPSGKEVAVKQLKAGSGQGEREFQAEVEIISRVHHR
HLVSLIGYCMAGVQRLLLYYEFVPNNNLEFHLHGKGRPTWEWSTRLKIALGSAKGLSYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HEDCNPKI IHRDIKASNILIDFKPEAKVADFGLAKIASDTNTHVSTRVMGTFGYLAPE
YAASGKLTEKSDVFSFGVVLLELITGRRPVDANNVYVDDSLVDWARPLLNRASEEGDF
EGLADSKMGNEYDREEMARMVACAAACVRHSARRRPRMSQI VRALEGNVSLSDLNEGM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein id="%AP37759.1"
/db_xref="GI:30725474"
/translation="MSTAPSPGTTPSPSPPPPPNSTTTPPPPAASSPPPTTTPSSPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PSPSTNSTSPPPSSPLPPSLPPPSPPGSLTPPLPQPSPSAPITBSPPSPTTFSNPRSP
PSPNQGPPNTPSGSTPRTPSNTKPSPPSDSSDGLSTGVVVGIAIGGVAILVILTLICL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted (15-MAY-2003) Salk Institute Genomic Analysis Laboratory (SIGNAL), Plant Biology Laboratory, The Salk Institute for Biological Studies, 10010 N. Torrey Pines Road, La Jolla, CA 92037,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LCKKKRRRRHDDEAAYYVPPPPSGPKAGGPYGGQQQYWQQQNASRPSDNHVVTSLPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RPGHSNVYSSYGGSTDYDTSQYNDDMIKFRKMALGTQEYGTTGEYSNPTSDYGLYPSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cheuk, R. (SSP/Salk) and Seki, M. (RIKEN GSC) contributed equally to this work. Shinozaki, K. (RIKEN GSC) and Ecker, J.R. (SSP/Salk) contributed equally to this work as PIs. Location/Qualifiers
                                                                   Bukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Magnoliophyta, eudicotyledons, core eudicots,
rosids, eurosids II, Brassicales, Brassicaceae, Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The discrepancy does not affect the protein sequence.
RIKEN Genomic Sciences Center (GSC) members carried out the
Collection and clustering of RAFL cDNAs (RAFL cDNA : 'RIKEN
Arabidopsis Full-Length CDNA') : Seki,M., Narusaka,M., Ishida,J.,
Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai,J.,
Hayashizaki,Y. and Shinozaki,K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The Salk, Stanford, PGEC (SSP) Consortium members constructed and sequenced the pUNI (ORF) clones using the RAFL cDNAs: Cheuk, R., Chen, H., Kim, C.J., Shinn, P., Bowser, L., Chan, M.M., Chang, C.M., Dale, J.M., Hsuan, V.W., Jones, T., Karlin-Neumann, G., Lam, B., Lee, J.M., Lin, J., Miranda, M., Nquyen, M., Onodera, C.S., Palm, C.J., Quach, H.L., Southwick, A., Tang, C.C., Toriumi, M., Wong, C., Wu, H.C., Yamada, K., Yu, G., Yuan, S., Davis, R.W., Theologis, A., and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        clone="U17522"
ecotype="Columbia"
note="This clone is in pUNI 51"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'organism="Arabidopsis thaliana"
       Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   note="unknown protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /mol_type="mRNA"
/db_xref="taxon:3702"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   product="At3g24550"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        chromosome="3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      codon start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    . .1959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               . .1959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ecker, J.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BOUTCE
                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
JOURNAL
                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
```

COMMENT

```
    .2098
    /organism="Arabidopsis thaliana"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4.6e-24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3.4%; Score 66; DB 8;
100.0%; Pred. No. 4.6e-2.
tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SSSEGQATREMEMGKIKKTGQGYSGPSL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Arabidopsis thaliana (thale cress)
                                                                                                                                                                                                                                                                                                          /mol_type="mRNA"
/db_xref="taxon:3702"
                                                                                                                                                                                                                                                                                                                                                          /clone="U16568"
/ecotype="Columbia"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1. .1959
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AY056788.1 GI:15983764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1492 TCTGAG 1497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1507 TCTGAG 1512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity
Matches 66; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AY056788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 9
AY056788
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Arabidopsis thaliana (thale cress)

Arabidopsis thaliana (thale cress)

Arabidopsis thaliana (thale cress)

Marabidopsis thaliana (balance)

Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; endicotyledons; core eudicots; roside; euroside II; Brassicales; Brassicaceae; Arabidopsis.

I (bass 1 to 2098)

Tripp, M., Southwick, A., Karlin-Neumann, G., Nguyen, M., Miranda, M., Palm, C.J., Bowser, L., Jones, T., Banh, J., Carninci, P., Chen, H., Rawai, J., Kim, C., Lin, J., Liu, S.X., Narusaka, M., Enden, P., K., Sakano, H., Sakurai, T., Satou, M., Seki, M., Shinn, P., Yamada, K., Shinozaki, K., Ecker, J., Theologis, A. and Davis, R.W.

Direct Submission

Submitted (01-JUL-2002) DNA Sequencing and Technology Center, Stanford University, 855 California Avenue, Palo Alto, CA 94304,
                                                                                                                                                                                                                                                                                                                                                                                                         LCKKKRRRHDDEAAYYVPPPPPSGPKAGGPYGGQQYWQQQNASRPSINHVVTSLPP
PREPERPREPERPTYBELSRA
TNGFSEBANLLGGPGTYVHKGILSGREVARAGEPTYBELSRA
TNGFSEBANLLGGPGTYVHKGILSGREVARAGEPTHGEGSTRPTYBELSRA
HLVSLIGYCMAGVQRLLVYEFVPNNILEPHLHGKGRPTWEWSTRLKIALGSAKGLSYL
HROUNKLIHRDIKABNILIDFKFERVADFGLAKLASDTWTHVSTRVMGTFGYLAPB
YAASGKLTEKSDVFSTGVVLLEITGRRPADANNVYVDDSLVUWARPLINRASBEGDF
EGLADSKAGNEYDREEMARWVACAAACVRHSARRPRMSQIVRALEGRNVSLSDLNEGM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AY128792 2098 bp mRNA linear PLN 07-AUG-2002 Arabidopsis thaliana protein kinase-like protein mRNA, complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The RIKEN Genomic Sciences Center (GSC) members carried out the collection and clustering of RAFL cDNAs (RAFL cDNA : 'RIKEN Arabidopsis Full-Length cDNA'): Seki,M., Narusaka,M., Ishida,J., Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai, J., Hayashizaki,Y. and Shinozaki,K.
                                                                                                                                                                                                                                                                                                                                                          PSPSTNSTSPPPSSPLPPSLPPSPPGSLTPP1PQPSPSAPITPSPPSPTTFSNPRSP
PSPNQGPPNTPSGSTPRTPSNTKPSPPSDSSDGLSTGVVVGIAIGGVAILVILTLICL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RPGHSNVYSSYGGSTDYDTSQYNDDMIKFRKMALGTQEYGTTGEYSNPTSDYGLYPSG
SSSEGQATREMEMGKIKKTGQGYSGPSL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1432 AACAATGTCTATGTAGATGACAGCTTAGTTGACTGGGCACGACCATTGCTTAACCGAGCA 1491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1447 AACAATGTCTATGTAGATGACAGCTTAGTTGACTGGGCACGACCATTGCTTAACCGAGCA 1506
                                                                                                                                                                                                                                                                                                                                       translation="MSTAPSPGTTPSPSPPPPTNSTTTTPPPAASSPPPTTTPSSPP/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       e-mail for correspondence: arab@sequence.stanford.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.4%; Score 66; DB 8; Length 1959;
100.0%; Pred. No. 4.6e-24;
tive 0; Mismatches 0; Indels
'organism="Arabidopsis thaliana"
                                                                                                                                                          'note="This clone is in pUNI 51"
                                                                                                                                                                                                                                                       /product="At3g24600"
/protein_id="AAP37768.1"
/db_xref="G1:30725492"
                                                                                                                                                                                                       note="protein kinase"
                             'mol_type="mRNA"
'db xref="taxon:3702"
                                                                                                                             ecotype="Columbia"
                                                                                                       clone="U15366"
                                                                                                                                                                                                                                  codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AY128792
AY128792.1 GI:22136227
                                                                                                                                                                             .1959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   66; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1492 TCTGAG 1497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1507 rcrcak 1512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Si
Matches 66;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AY128792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
```

셤 ò

ò

```
/product="protein kinase-like protein"
/protein id="AAM91182.1"
/db xref="G1:22136228"
/translation="MSTAPSPGTTPSPSPPSPPPTTTPPPAASSPPPTTTPSSPP
PSPSTMSTSPPSSPLPSDLPPSPPSPGSLTPPLRQPSPSAPITPSSPPPPTTPSNPRSP
PSPSTMSTSPPSSPLPSDLPPSPPSPGSLTPPLRQPSPSAPITPSNPRSPPSPPNTFSNTKPSPPSSSDGLSTGVVGIAIGGVAILVILTLICL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LCKKKRRRRHUDDEAAYYVPPPPSGPKAGGPYGGQQQYWQQQNASRPSDNHVVTSLPP
PKPPSPPRKPPPPPPPPPAFMSSGGSDYSDLPVLPPPSPGLVLGFSKSTFTYBELSRA
TNGFSEANLLGQGGFGYVHKGILPSGKEVAVKQLKAGSGQGEREFQAEVEIISRVHHR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HEDCNPKI IHRDIKASNI LIDFKFEAKVADFGLAKIASDTNTHVSTRVMGTFGYLAPE
XAGSKALTSKSDVESFGVLLELITGREPODANUYVDDSLUUMARPLLARASEEGDF
EGLADSKMGNEYDDERMARNACAAACVRHSARRPRASQI VRALEGNVSLSDLNEGM
RPGHSNVYSSYGGSTDYDTSQYNDDMIKFRKMALGTQEYGTTGEYSNPTSDYGLYPSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cheuk, R., Chen, H., Kim, C.J., Koesema, E., Meyers, M.C., Banh, J., Bowser, L., Carninci, P. Dale, J.M., Goldamith, A.D., Hayashizaki, Y., Bowser, L., Carninci, P., Dale, J.M., Kamiya, A., Karlin-Neumann, G., Kawai, J., Lam, B., Lee, J.M., Lin, J., Liu, S.X., Miranda, M., Naruyen, M., Onodera, C.S., Palm, C.J., Pham, P.K., Quach, H.L., Sakurai, T., Satou, M., Seti, M., Southwick, A., Tang, C.C., Toriunt, M., Yamada, K., Yamamura, Y., Yu, G., Yu, S., Shinozaki, K., Davis, R.W., Theologis, A. and Ecker, J.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HLVSLIGYCMAGVQRLLVYEFVPNNNLEFHLHGKGRPTMEWSTRLKIALGSAKGLSYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AYO56788 2116 bp mRNA linear PLN 08-OCT-2001
Arabidopsis thaliana AT3g24550/MOB24_8 mRNA, complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="This clone is in pENTR/SD-dTopo This is a cloned PCR product using RIKEN clone RAFL09-06-A17 (AY059901) as a template"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
The Salk, Stanford, PGEC (SSP) Consortium members constructed and sequenced the pUNI (ORF) clones using the RAFL cDNAs: Tripp,M., Nguyen,M., Southwick,A., Karlin-Neumann,G., Lam,B., Miranda,M., Palm,C.J., Bowser,L., Johnes,T., Banh,J., Chen,H., Cheuk,R., Chung,M.K., Kim,C., Lin,J., Liu,S.X., Pham,P.K., Sakano,H., Shinn,P., Yamada,K., Ecker,J., Theologis,A. and Davis,R.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1432 AACAATGTCTATGTAGATGACAGCTTAGTTGACTGGGCACGACCATTGCTTAACCGGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ..
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 2098;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
```

TITLE JOURNAL REFERENCE AUTHORS

TITLE JOURNAL

COMMENT

```
HEDCNPKI IHRDIKASNILIDFKFEAKVADFGLAKIASDTNTHVSTRVMGTFGYLAPB
YAASGKLTEKSDVFSFGVVLLELITGRRPVDANNVYVDDSLVDWARPLLNRASEEGDF
EGLADSKMGNEYDREEMARMVACAAACVRHSARRRPRMSQIVRALEGNVSLSDLNEGM
                                                                                                                                                                                                               AY059901 2188 bp mRNA linear PLN 04-NOV-2001
Arabidopsis thaliana protein kinase-like protein (MOB24.13) mRNA,
complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /tränglation="MSTAPSPGTTPSPSPPPPTNSTTTTPPPPAASSPPPTTPSSPP
PSPSTNSTSPPPSSPLPPSLPPSPPSSPPGSLTPPLPQPSPSAPITPSPPSPPTTTSSPP
PSPNQGPPNTPSGSTPRTPSNTKPSPPSDSSDGLSTGVVVGIAIGGVAILVILTLICL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LCKKKRRRRHDDEAAYYVPPPPSGPKAGGPYGGQQQYWQQQNASRPSDNHVVTSLPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PKPPSPPRKPPPPPPPAFMSSSGGSDYSDLPVLPPPSPGLVLGFSKSTFTYEELSRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INGFSEANLLGOGGFGYVHKGILPSGKEVAVKOLKAGSGOGEREFQAEVEIISRVHHR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HLVSLIGYCMAGVORLLVYEFVPNNNLEFHLHGKGRPTMEWSTRLKIALGSAKGLSYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Arabidopsis thaliana
Bukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Magnoliophyta, eudicotyledons, core eudicots,
rosids, eurosids II, Brassicales, Brassicaceae, Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                collection and clustering of RAFL cDNAs (RAFL cDNA: 'RIKEN Arabidopsis Full-Length cDNA'): Seki,M., Narusaka,M., Ishida,J., Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai,J., Hayashizaki,Y. and Shinozaki,K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The Salk, Stanford, PGEC (SSP) Consortium members carried out the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sequencing and annotation of the RAFL cDNAs: Nguyen,M., Southwick,A., Karlin-Neumann,G., Lam,B., Miranda,M., Palm,C.J., Bowser,L., Jones,T., Banh,J., Chen,H., Cheuk,R., Chung,M.K., Kim,C., Lin,J., Liu,S.X., Pham,P.K., Sakano,H., Shinn,P., Yamada,K., Ecker,J., Theologis,A. and Davis,R.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 (bases I to 2188)

Nguyen, M., Karlin-Neumann, G., Southwick, A., Lam, B., Miranda, M., Palm, C.J., Bowser, L., Jones, T., Banh, J., Carninci, P., Chen, H., Cheuk, R., Chung, M.K., Hayashizaki, Y., Ishida, J., Kamiya, A., Kamiya, M., Kim, C., Lin, J., Liu, S.X., Narusaka, M., Pham, P.K., Sakano, H., Sakurai, T., Satou, M., Seki, M., Shinn, P., Yamada, K., Shinn, P., Kamada, K., Direct Submission
Submitted (22-OCT-2001) DNA Sequencing and Technology Center, Stanford University, 855 California Avenue, Palo Alto, CA 94304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nguyen,M, (SSP/Stanford) and Seki,M. (RIKEN GSC) contributed equally to this work. Shinozaki,K. (RIKEN GSC) and Davis,R.W. (SSP/Stanford) contributed equally to this work as PIs. Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RIKEN Genomic Sciences Center (GSC) members carried out the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            e-mail for correspondence: arab@sequence.stanford.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="protein kinase-like protein"
/protein id="AAL24383.1"
/db_xref="G1:16649063"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="This clone is in pBluescript"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            organism="Arabidopsis thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                            FLI_CDNA.
Arabidopsis thaliana (thale cress)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /clone="RAFL09-06-A17"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /mol_type="mRNA"
/db_xref="taxon:3702"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /chromosome="III"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="MOB24.13"
32. .1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="MOB24.13"
                                                                                                                                                                                                                                                                                                                                                                      AY059901.1 GI:16649062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .2188
                              1543 TCTGAG 1548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                   LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                              RESULT 10
                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                  VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                    AY059901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                         Chases 1 to 2116)
Cheuk,R., Chen,H., Kim,C.J., Koesema,E., Meyers,M.C., Banh,J.,
Bowser,L., Carninci,P., Dale,J.M., Goldsmith,A.D., Hayashizaki,Y.,
Bowser,L., Carninci,P., Jones,T., Kamith,A.D., Hayashizaki,Y.,
Ishida,J., Jiang,P.X., Jones,T., Kamiya,A., Karlin-Neumann,G.,
Kawai,J., Lam,B., Lee,J.M., Lin,J., Liu,S.X., Miranda,M.,
Narusaka,M., Nguyen,M., Onodera,C.S., Palm,C.J., Pham,P.K.,
Quach,H.L., Sakurai,T., Satou,M., Seki,M., Southwick,A., Tang,C.C.,
Toriumi,M., Yamada,K., Yamamura,Y., Yu,G., Yu,S., Shinozaki,K.,
Davie,R.W., Theologis,A. and Ecker,J.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The Salk, Stanford, PGEC (SSP) Consortium members carried out the sequencing and annotation of the RAFL cDNAS: Chen, H., Kim, C.J., Koesema, E., Meyers, M.C., Shinn, P., Banh, J. Bowser, L., Lan, G.J., Goldemith, A.D., Jiang, P. X., Jones, T., Karlin-Neumann, G., Dane, J. M., Lin, J., Liu, S.X., Miranda, M., Nguyen, M., Onodera, C.S., Palm, C.J., Pham, P.K., Quach, H.L., Southwick, A., Tang, C.C., Toriumi, M., Yamada, K., Yamamura, Y., Yu,G., Yu,S., Davis, R.W., Theologis, A., and Ecker, J.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PSPSTNSTSPPPSSPLPPSLPPSPPGSLTPPLPQPSPSAPITPSPPSPTTPSNPRSP
PSPNGCPPRTPSGSTPRTTRSSTRESPPSDSSDGLSTGWV0GTAIGGYAILVILTLICL
LCKKKRRRHUDEAAYYVPPPPPSGPKAGGPYGGQQQYWQQQNASRPSDNHVTTSLPD
PKPPSPPRKPPPPPPAPRNSSSGGSDYSDLPVLPPPSPGIVLGFSKSTFTYBELSKA
TNGFSEANLLGQGGFGYVHKGILPSGKEVAVKQLKAGSGQGEREFQAEVEIISRVHHR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HLVSLIGYCMAGVQRLLVYEFVPNNNLEFHLHGKGRPTMEWSTRLKIALGSAKGLSYL
HEDCNPKIIHRDIKASNILIDPKFEAKVADFGLAKIASDTNTHVSTRVMGTFGYLAPE
YAASGKLTEKSDVFSFGVVLLELITGRRPVDANNVYVDDSLVDWARPLLNRASEEGDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EGLADSKMGNEYDREEMARMVACAAACVRHSARRRPRMSQIVRALEGNVSLSDLNEGM
REHSNVYSSYGGSTDYDTSQYNDDMIKRRKMALGTQEYGTTGEYSNPTSDYGLYPSG
SSSEGQATREMEMGKIKKTGQGYSGPSL"
1996. .2116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       translation="MSTAPSPGTTPSPSPPPPPTNSTTTPPPPAASSPPPTTTPSSPP/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1432 AACAATGTCTATGTAGATGACAGCTTAGTTGACTGGGCACGACCATTGCTTAACCGAGCA 1491
                                                                                                                                                                                                                                                                                                                                                                                                                                       Submitted (II-SEP-2001) Salk Institute Genomic Analysis Laboratory (SIGnAL), Plant Biology Laboratory, The Salk Institute for Biological Studies, 10010 N. Torrey Pines Road, La Jolla, CA 92037,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cheuk, R. (SSP/Salk) and Seki, M. (RIKEN GSC) contributed equally to this work. Shinozaki, K. (RIKEN GSC) and Ecker, J.R. (SSP/Salk) contributed equally to this work as PIs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RIKEN Genomic Sciences Center (GSC) members carried out the collection and clustering of RAFL cDNAs (RAFL cDNA: 'RIKEN trabidopsis Full-Length cDNA'): Seki,M., Narusaka,M., Ishida,J., Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai,J., Hayashizaki,Y. and Shinozaki,K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3.4%; Score 66; DB 8; Length 2116;
100.0%; Pred. No. 4.6e-24;
ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Arabidopsis thaliana"
|mol_trype="mRNN"
|db_xref="taxon:3702"
|chromosome="3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'note="putative protein kinase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            clone="RAFL09-19-J24 (R14362)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="AT3g24550/MOB24_8"
/protein_id="AAL10479.1"
/db_xref="GI:15983765"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'ecotype="Columbia"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        codon_start=1
Arabidopsis cDNA clones
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       66; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                  Unpublished
```

source

FEATURES

5'UTR CDS

CA 94304,

RPGHSNVYSSYGGSTDYDTSQYNDDMIKFRKMALGTQEYGTTGEYSNPTSDYGLYPSG

1492 TCTGAG 1497

셤 ð

ઠે

3'UTR ORIGIN

Matches

ö

Gaps

ò 원

```
/protein_id="AAM13064.1"

/db_xref="GI:20260312"

/db_xref="GI:20260312"

/db_xref="GI:20260312"

/db_xref="GI:20260312"

/db_xref="GI:20260312"

/db_xref="GI:20260312"

/db_xref="GI:20260312"

/db_xref="GI:20260312"

/db_xref="GI:20260312"

/db_xref="GI:20260312"

/db_xref="GI:20260312"

/db_xref="GI:20260312"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xref="GI:2026031"

/db_xre
                                                                                                                                                                                                                                                                                                                                                                                                      YAASGKLTEKSDVFSFGVVLLELITGRRPVDANNVYVDDSLVDWARPLLNRASEEGDF
EGLADSKMGNEYDREEMARMVACAAACVRHSARRRPRMSQIVRALEGNVSLSDLNEGM
RPGHSNVYSSYGGSTDYDTSQYNDDMIKFRKMALGTQEYGTTGEYSNPTSDYGLYPSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1476 AACAATGTCTATGTAGATGACAGCTTAGTTGACTGGGCACGACCATTGCTTAACCGAGCA 1535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AF370509 2257 bp mRNA linear PLN 30-APR-2001
Arabidopsis thaliana protein kinase-like protein (MOB24.13) mRNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1432 AACAATGTCTATGTAGATGACAGCTTAGTTGACTGGGCACGACCATTGCTTAACCGAGCA 1491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Embryophyta; Tracheophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The Salk, Stanford, PGEC (SSP) Consortium members carried out the sequencing and annotation of the RAFL cDNAs: Southwick, A., Karlin-Neumann, G., Nguyen, M., Lam, B., Miranda, M., Palm, C.J., Bowser, L., Jones, T., Banh, J., Chen, H., Cheuk, R., Chung, M.K., Kim, C., Lin, J., Liu, S.X., Pham, P.K., Sakano, H., Shinn, P., Yamada, K., Ecker, J., Theologis, A. and Davis, R.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    collection and clustering of RAFL cDNAS (RAFL cDNA: 'RIKEN Arabidopsis Full-Length cDNA'): Seki,M., Narusaka,M., Ishida,J., Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai,J., Hayashilzaki,Y. and Shinozaki,K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Direct Submission
Submitted (17-APR-2001) DNA Sequencing and Technology Center,
Stanford University, 855 California Avenue, Palo Alto, CA 94304,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Southwick, A. (SSP/Stanford) and Seki, M. (RIKEN GSC) contributed equally to this work. Shinozaki, K. (RIKEN GSC) and Davis, R.W. (SSP/Stanford) contributed equally to this work as PIs. Location/Qualifiers 1. .2257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      l (baees 1 to 2257)
Southwick, A., Karlin-Neumann, G., Nguyen, M., Lam, B., Miranda, M., Palm, C.J., Bowser, L., Jones, T., Banh, J., Carrinci, P., Chen, H., Cheuk, R., Chung, M.K., Hayashizaki, Y., Ishida, J., Kamiya, A., Kawai, J., Kim, C., Lin, J., Liu, S.X., Narusaka, M., Pham, P.K., Sakano, H., Sakurai, T., Satou, M., Seki, M., Shinn, P., Yamada, K., Shinozaki, K., Ecker, J., Theologis, A. and Davis, R.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
Arabidopsis thaliana
Arabidopsis thaliana
Bubaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheo; Spermarophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RIKEN Genomic Sciences Center (GSC) members carried out the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ..
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             e-mail for correspondence: arab@sequence.stanford.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 2190;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3.4%; Score 66; DB 8; Le
100.0%; Pred. No. 4.6e-24;
tive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SSSEGQATREMEMGKIKKTGQGYSGPSL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AF370509.1 GI:13877616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  66; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1492 TCTGAG 1497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1536 rCTGAG 1541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AF370509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S:
Matches 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 12
AF370509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                           1432 AACAATGTCTATGTAGATGACAGCTTAGTTGACTGGGCACGACCATTGCTTAACCGGGCA 1491
                                                                                                                                                                                                                                                                                                                                                1478 AACAATGTCTATGTAGATGACAGCTTAGTTGACTGGGCACGACCATTGCTTAACCGAGCA 1537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PLN 21-APR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FLI CDNA.
Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
Arabidopsis thaliana
Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The Salk, Stanford, PGEC (SSP) Consortium members carried out the sequencing and annotation of the RAFL CDNAs: Southwick, A., NGUYEH, M., Karlin-Neumann, G., Lam, B., Miranda, M., Palm, C.J., Bowser, L., Jones, T., Banh, J., Chen, H., Cheuk, R., Chung, M.K., Kim, C., Lin, J., Liu, S. X., Pham, P. K., Sakano, H., Shinn, P., Xawanda, K., Ecker, J., Theologis, A. and Davis, R.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       collection and clustering of RAFL cDNAS (RAFL cDNA : 'RIKEN stabidopsis Full-Length CDNA'): Seki,M., Narusaka,M., Ishida,J., Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai,J., Hayashizaki,Y. and Shinozaki,K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Southwick, A., (SSP/Stanford) and Seki, M. (RIKEN GSC) contributed equally to this work. Shinozaki, K. (RIKEN GSC) and Davis, R.W. (SSP/Stanford) contributed equally to this work as PIS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Submitted (27-MAR-2002) DNA Sequencing and Technology Center, Stanford University, 855 California Avenue, Palo Alto, CA 94304,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AY093065 2190 bp mRNA linear PLN 21-APR-?
Arabidopsis thaliana unknown protein (At3g24550) mRNA, complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 (bases 1 to 2190)
Southwick, A., Karlin-Neumann, G., Nguyen, M., Lam, B., Miranda, M., Palm, C.J., Bowser, L., Jones, T., Banh, J., Carninci, P., Chen, H., Cheng, M.K., Hayashizaki, Y., Ishida, J., Kamiya, A., Kawai, J., Kim, C., Lin, J., Liu, S.X., Narusaka, M., Pham, P.K., Sakano, H., Sakurai, T., Satou, M., Seki, M., Shinn, P., Yamada, K., Shinozaki, K., Ecker, J., Theologis, A. and Davis, R.W.
                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RIKEN Genomic Sciences Center (GSC) members carried out the
                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            e-mail for correspondence: arab@sequence.stanford.edu
                                                                                                                                   8; Length 2188;
                                                                                                                                                                                                         0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /ecotype="Columbia"
/note="This clone is in pBluescript"
                                                                                                                                                                        4.6e-24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'organism="Arabidopsis thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /clone="RAFL07-12-E08 (R17522)"
                SSSEGOATREMEMGKIKKTGQGYSGPSL'
                                                                                                                           3.4%; Score 66; DB 100.0%; Pred. No. 4.6cive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="unknown protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /mol_type="mRNA"
/db xref="taxon:3702"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="At3g24550"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene="At3g24550"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       chromosome="3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AY093065.1 GI:20260331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .1988
                                                                                                                                                                                                                 66; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                   1492 TCTGAG 1497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1538 TCTGAG 1543
                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AY093065
                                                                                                                                   Query Match
                                                                                                                                                                            Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 11
AY093065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                     ORIGIN
```

```
source
                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LCKKKRRRRHDDEAAYYVPPPPSGPKAGGPYGGQQQYWQQQNASRPSDNHVVTSLPP
PKPPSPPKKPPPPPPPPPAFMSSSGGSDYSDLPVLPPPSPGLVLGFSKSTFTYEELSRA
TNGFSEANLLGQGGFGYVHKG1LPSGKEVAVKQLKAGSGQGRRFFQAEVEIISRVHHR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HLVSLIGYCMAGVQRLLVYEFVPNNNLEFHLHGKGRPTWEWSTRLKIALGSAKGLSYL
HEDCHRKI HHDIKAGNILIDFKFERKYADFGLAKIASOTNTHYSTRYMGTFGYLAPB
YAASGKLTEKGSUVESEGVVLLEITGRRPVDANNVYVDDSLVUWARPLLNRSBEGDF
BGLADSKMGNEYDREEMARMVACAAACVRHSARRRPRMSQIVRALEGNVSLSDINBGM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Institute, Department of Plant Gene Research; 1532-3, Yana, Kisarazu, Chiba 292-0812, Japan (B-mail:ynakamu@kazusa.or.jp, Tel:81-438-52-3935, Fax:81-438-52-3934)
Address for correspondence: kaos@kazusa.or.jp
For the latest information on annotation of this clone, please see http://www.kazusa.or.jp/kaos/cgi-bin/agd_graph.cgi?c=MOB24
Genes with similarity to proteins in the databases are described in
                                                                                                                                                                                                                                                                                                                                                                                           /txanslation="MSTAPSPGTTPSBSPPSPPRNSTTTTPPPPAASSPPPTTPSSPP
PSPSTNSTSPPPSSPLPPSLPPPSSPPGSLTPPIPQPSPSAPITPSPPSPPTTPSNPRSP
PSPNQGPPNTPSGSTPRTPSNTKPSPPSDSSDGLSTGVVVGIAIGGVAILVILTLICL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RPGHSNVYSSYGGSTDYDTSQYNDDMIKFRKMALGTQEYGTTGEYSNPTSDYGLYPSG
SSSEGQATREMEMGKIKKTGQGYSGPSL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1432 AACAATGTCTATGTAGATGACAGCTTAGTTGACTGGGCACGACCATTGCTTAACCGAGCA 1491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PLN 27-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Kaneko,T., Katoh,T., Sato,S., Nakamura,A., Asamizu,E. and Tabata,S. Structural analysis of Arabidopsis thaliana chromosome 3. II. Sequence features of the 4,251,695 bp regions covered by 90 P1, TAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Arabidopsis thaliana
Eukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Magnoliophyta, eudicotyledons, core eudicots,
rosids, eurosids II, Brassicales, Brassicaceae, Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Kaneko,T., Kato,T., Sato,S., Nakamura,Y., Asamizu,E. and Tabata,S.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AB020746 79706 bp DNA linear PLN 27-DEC-2
Arabidopsis thaliana genomic DNA, chromosome 3, Pl clone: MOB24.
AB020746 BA000014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Submitted (03-DEC-1998) Yasukazu Nakamura, Kazusa DNA Research
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3.4%; Score 66; DB 8; Length 2257;
100.0%; Pred. No. 4.5e-24;
ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                        'codon_start=1
'product="protein kinase-like protein"
                                                                                               /clone="RAFL11-07-N23"
/ecotype="Columbia"
/note="This clone is in pBluescript"
'organism="Arabidopsis thaliana"
                                                                                                                                                                                                                                                                                                                                          /protein_id="AAK43886.1"
/db_xref="GI:13877617"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Arabidopsis thaliana (thale cress)
                     /mol_type="mRNA"
/db_xref="taxon:3702"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA Res. 7 (3), 217-221 (2000)
                                                                            chromosome="III"
                                                                                                                                                                                                                                  107. .2065
/gene="MOB24.13"
                                                                                                                                                                                                         gene="MOB24.13"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AB020746.1 GI:3985949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (bases 1 to 79706)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                    .2257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and BAC clones
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1613 TCTGAG 1618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1492 TCTGAG 1497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20363099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .0907853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 13
AB020746
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PUBMED
                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
```

용 ઠ

```
'product' or 'note' qualifiers. Genes that have no significant protein similarity are described as 'unknown protein'. The software programs used to predict genes include: Grail (Informatics Group, Oak Ridge National Laboratory, http://compbio.ornl.gov/Grail-1.3/), GENSCAN (Chris Burge, MIT, http://CCR-081.mit.edu/GENSCAN.html), NetGene2 (S.M. Hebsgaard, et al., CBS, Technical University of Denmark, http://www.cbs.dtu.dk/services/NetGene2/) and SplicePredictor (Volker Brendel, Stanford University, http://grenlinlin.zool.isatate.edu/ggi-bin/sp.cgi). Genes encoding tRNAs are predicted by tRNAscan-SE (Sean Eddy, Washington University School of Medicine, St. Louis, http://genome.wustl.edu/eddy/tRNAscan-SE/). This sequence may not be the entire insert of this clone. It may be shorter because we remove overlaps between neighboring submissions. The 5' clone is MXP5 and the 3' clone is MSD24.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GDSEEBEDDDEVEYERKKVNDAASYKALADSVERFGKVYEKMEKSKKEGWKELEKNR
ADFORDLELOKKQIVURAQSETARLREBEENHHGGDDDESEDEBENBUNDSDVNLSDE"
complement (join (3794 - 4276, 4383 - 4490, 4577 - 4673,
4757 - 5179, 5354 - 5548, 5693 - 5970, 6088 - 6214, 6297 - 6496,
6601 - 6648, 6743 - 6776, 6882 - 7013, 7464 - 7559, 7677 - 7743,
8162 - 8217, 8290 - 8385, 8470 - 8998, 9122 - 9462)
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TATELEM TO THE TOTAL THE TOTAL THE TOTAL THE TOTAL TOTAL TOTAL TOTAL TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL THE TOTAL T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /translation="MGDSEDETGYPKKFYSLNRQNHPMYSRPIPKRHAYYNEEEDBDB VEGEBEDPGGGYIRGYRRYRKYSGFBFAGFSDAKVAYDWRBQBAFVLLEVW GDRFLQLGRRSLRNEDWRFQKYRKEKIKVEKGGDRFLQLGRRSLRNEDWRFYGFAGFRAGFSBELRMEKYRKEKIKVEKGGLGRSCKWSFPRKLDMLLCVSFRSDLGLACGYDSGEFVPRNTYKYLDKSNGFDEMDNESPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NNSCDGGFSGTLYKYLDNCVSPTGKRLLRNWICHPLKOVESINKRLDVVEEFTANSES
WQTTGQYLHKLPDLERLLGRX KSSYRSASAVLDALLGKKVKKRGVRKAFGOJUKGFRSG
IDLILALQKESNWMSLLYKLCKL.PILVGKSGLELFLSGFEAAIDSDPPNYQNODVTDB
NAETLTILIELFIERATQWSEVIHTISCLDVLRSFAIAASLSAGSMARPVIFPESSAT
BONGYKTGRILLKQCIMPHENAADGCDFVPDILLGGBARRSGSGIHFRSLLLTGPNM
GGKSTILLRATCLAVIFRAGLEVPESSCEISLVDTIFFTLGATSCHAFGASDRINTGERRESTENDECT
ETASVLQNATQDSLVILDBLGGRGTSTFDGYAIAYSVFRHLVEKVQCRMLFATHYPPLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   translation="MQRQRSILSFFQKPTAATTKGLVSGDAASGGGGSGGPRFNVKEG/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEFASHPRVTSKHMACAPKSRSDYQPRGCDQDLVFLYRLTEGACPESYGLQVALMAGI
PNQVVETASGAAQAMKRSIGENFKSSELRSEPSSLHEDWLKSLVGISRVAHNNAPIGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /evidence=not_experimental
/product="ethylene-responsive transcriptional
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /evidence=not_experimental
produce=not_expair protein Muts"
/protein_id="MAB01996.1"
/db_xref="GI:9294039"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      organism="Arabidopsis thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /evidence=not_experimental
/protein_id="BAB01995.1"
/db_xref="G1:9294038"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /mol_type="genomic_DNA"
/strain="Columbia"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="gene_id:MOB24.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="gene id:MOB24.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /clone_lib="Mitsui P1"
2398. .3399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ODYDTLFCLWHEIKSSYCVPK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /db_xref="taxon:3702"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     unknown protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /chromosome="3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       clone="MOB24"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .10577
```

```
id:MOB24.9"
                                                                                                                                                                                                                                                                                                                                                                  codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AY089024.1 GI:21407798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (bases 1 to 2324)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 2.6
Best Local Similarity 100.
Matches 51; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FLI CDNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       22088475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12093376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 14
AY089024
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   YOTIDEMOTINKSPECKEDIDITION INTERNATION OF DEFENSE YOTIDEMOTINKSPECKED TO THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE 
                                                                                                        /translation="MPSRYPGAVTQDWEPVVLHKSKQKSQDLRDPKAVNAALRNGVAV
AUTKKEPAGSGNKKGKSTAVPVINTKKLEBETPPAAUDRVKEKTRM, QKARLEKKMSQ
ADLAKQINERTQVVQEYEROKGAVPPVONJAKNEKVLGVKLRGKIGK"
complement (join(11108 . 111381, 111467 . 11528, 11699 . 11836, 11934 . 12071, 12161 . 12334, 12421 . 12510, 12718 . 13104, 100 e= "gene_id:MOB24.4"
//oce="gene_id:MOB24.4"
//codon_gtare=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /translation="MTPLSISASPSPWPLLSPPLSSSSLNRAAPSIFSPFSRINHGF
SCSFIAVQRFALSRKTRKQLQVVAMAPEEEKLTRRNPLDFPIEWERPKPGRRPDIFPK
FSPWKSPLPPPWPYDPPEEEEEEKKEEEFTEDDPEKEDEDQPDNRS"
fion (23402. 23459, 23819. .24021)
/note="gene_id-MD24.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       / LTAIN LALL TONE "MOSELIAYLS LESNESPLIKLSRILSNIMLLYRTSTNIKRKRWCL AIP TYHLHHATPLWKSSITMLIRFORWEPFTYRFEISLSRAFILTOAMSHGETLLWD TYTSLEGLTRIMFSSSASPHOROQFTSFFPSPEMDASLSSSPYNSRHHHDLHLSBEKGL GLQUGLUFFGALVEPFENSLSFFSSLYRSKHHHDLHLSBEKGL GLQUGLUFFGALVERPEISLNYSSTRIFFDLUSPKLPLLKERSDLNYSIS FSOSLYHLLASIDRGHH TNHNELVLIMLHKNSLRTLPLVSSRIFVTGFICLKNNGIMFPTPTSRWCDLCHPSATI
                                                                                                                                                                                                                                                                                                                                                                                                                                                     /evidence=not_experimental
/product="aldehyde dehydrogenase"
/protein id="BAB01998.1"
/db xref="G1:9294041"
/translation="MRGKCKORATTVKLPEIKPTKLFINGQFIDAASGKTFETIDPRN
GEVIATIAEGDKEDVDLAVNAARYAFDHGPWPRWTGFERAKLINKFADLIEENIEELA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FDSTARQGPQVDKRQFEKILSYIEHGKNEGATLLTGGKAIGDKGYFIQPTIFADVTED MKIYQDEIFGSVMSLMKFKTVBEGIKCANNTRKGLAAGILSQDIDLINTVSRSIKAGI LWNCYFGFDLDCPYGGYMSGNCRESGMDALDNYLQTKSVVMPLHNSPWM" complement (join 119742. . 19933, 20400. . 20657))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KLDAVDGGKLFQLGKYADI PATAGHFRYNAGAADKIHGETLKWTRQSLFGYTLKEPIG
VOWI I PWIPEBIMFATVAPANAGGTWVVKRAGGYSLSALFYAHLSKRAGIPDGVL
VIGYTGFGSTAGAAL BAHMDVDRVSFTGSTDVGRKIMQAAASNLKKVSLELGGKSPLL
I FNDADIDKAADLALLGCFYNKGEI CVASSRVFVQEGIYDKVVEKLVEKADWTVGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             translation="MKNASLKLPLLIFILVITSNLGAEARKLTGVADVIVEGEAASPQ"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EDGNGKRKAVVGFGEGNSFGNDGIKRSRKKLSLALPSOSOKKDLCGEEELTRGVSAAC
KENKRUNLINGKKLSLGIKQPCNNTLASFRTSAAKSDNNRLSRKLSLRSPLGELNEVSK
PEVLAQTDMKLEMNONEDARSLRGEFENSVLEETSMAESIVVLDSDDSGQEEEERVSS
SRSRLSLAKRRVLKCPF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene id:MOB24.5
similar to unknown protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene_id:MOB24.8
similar to unknown protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /evidence=not_experimental
/protein_id="BAB01999.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /evidence=not_experimental
/protein_id="BAB02000.1"
/db_xref="GI:9294043"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /evidence=not_experimental
/protein_id="BAB02002.1"
/db_xref="G1:9294045"
protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'note="emb|CAB79678.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           db_xref="GI:9294042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      codon start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                codon start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           codon_start=1
```

CDS

CDS

```
Submitted (11-MAR-2002) Ceres, Inc, 3007 Malibu Canyon Road, Malibu, CA 90265, USA
This clone sequence is one of 5,000 Ceres full-length cDNAs made available to TIGR and Genbank. The following quality assessment of this set was done by comparison with known proteins: two percent the clones are estimated to be 5'-truncated; less than one percent are 3'-truncated; approximately two percent represent alternative splice variants, including unspliced introns and spliced exons; one percent may contain premature stop codons; five percent may have
CISPTHLGISFKQSCISSRVKAHISRISKEVPNLFEIITEPSPHALVVKGLKKIGIMI
TSPRSGDYQRFNLSHSYPLITEFKQKRFNIIKESIHDLQSGGNGHNSASPWSDYR
SFFNLLDLTPIVTHLLGDEQLQFLLLVSRTSALEPYSTSSRLTYNYLLSIDSFVED
SFFNLDLTQAMPYSIMLKALMNFMSFHIIYHLULGNASFNYVLNFVIFESILLLIFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /trānslation="WEDDNSNNNNNNVIAPPIVKTYQMVNDPSTDWLITWGPAHNSF
IVVDPLDFSQRILPAYFKHNNFSSFVRQLNTYGFRKVDPDRWEFANEHFLRGQKHLLN
NIARRKHARGMYGQDLEDGEIVREIERLKEEQRELEAEIQRMNRIEATEKRPEQMMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PLYKVVEDPDILIPRAMILEKERYKOOOVSDKKKRRVTWSTVKSEEEFVEEDEGRVFRV
MSSSTPSPSSTENLYRNHSPDGWIVPHTOGOPGSYETGLVAKSMLSNSTSSTSSSLTS
TSSLDESVNGGGGGGGGCSIOGERRYKFATAFGGVVESNPPTPPPPFSLPRGGF
COMPLEMENT (join 137054, 37670, 37670, 37894, 38197, 38288, 38189, 38288, 38189, 38288, 38189, 38288, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 38189, 381899, 381899, 381899, 381899, 381899, 381899, 381899, 381899, 381899, 381899, 381899, 381899, 381899, 381899, 381899, 381899, 3818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                linear PLN 14-APR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis. 1 (bases 1 to 2324)
Haas, B.J., Volfovsky, N., Town, C.D., Troukhan, M., Alexandrov, N., Feldmann, K.A., Flavell, R.B., White, O. and Salzberg, S.L.
Full-length messenger RNA sequences greatly improve genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3 (bases I to 2324)
Brover, V., Troukhan, M., Alexandrov, N., Lu, Y.-P., Flavell, R. and
Feldmann, K.
                                                                                                                                                                                                                                                                                                             join(32831. .33058,33143. .33907)
/note="contains similarity to heat shock transcription
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Troukhan, M., Alexandrov, N., Lu, Y.-P., Flavell, R. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             54008 GCTGCGGCTTGTGTTCTCGCCTTCGCCGCAGACCTCGCATGAGCCAG 54058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1579 GCTGCGCCTTGTGTTCGCCATTCAGCTCGCCGCAGACCTCGCATGAGCCAG 1629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AY089024 2324 bp mRNA linear PLN l-
Arabidopsis thaliana clone 17909 mRNA, complete sequence.
AY089024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 79706;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Brover, V., Troukhan, M., Alexandrov, N., Lu, Y
Feldmann, K.
Full-Length cDNA from Arabidopsis thaliana
Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 51; DB 8; Le
Pred. No. 7.2e-16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Genome Biol. 3 (6), RESEARCH0029 (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2.6%; Scc. No. ...
.v 100.0%; Pred. No. ...
... 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /evidence=not_experimental
/protein_id="BAB02003.1"
/db_xref="GI:9294046"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="gene_id:MOB24.10
unknown protein"
```

```
KAI EERLTRSELRVYTCLCKDFKSHRIDYSQFVKSLQRLIDKYKNLYQRFVDIAYGHG
EDEAGTRVKVDDNPQDTESDKIKLEGKGKRGMLPPKESDQPERPLKKRRTERATPNY
KLIPKEEQTPVSSTVLNNTWVVNSYDIQAQKNLTDIEKDMYWEDQMFELDMLVGFLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AFGESSDGFIGRHNFGLQNFPTLTSDYSFFLYQWAFAIAAAGITSGSIAERTKFVAYL
IYSSFLTGFVYPVVSHWFWSPDGWASPFRSEDRLFGTGAIDFAGSGVVHMVGGIAGLW
GALIEGPRIGRFPDGGHAIALRGHSASLVVLGTFLLWFGWYGFNPGSFTKILIPYNSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IDNTYLLFSAYLVFMQLGFMLCAGSVRAKYTMINLTNVLDAAGGLFYYLFGYAF
AFGGSSEGFIGRHNFALRDFPTPADYSFFLYQWARAIAAAGITSGSIAERTOFVAYL
ISSFLIGRYYPVVSHWFWSPDGWASPFRSADDFLSGYGVHWGGIAGL
WGALIEGPRGRFFEGGRAIAERSSLVYLGTFLLWFGWYGFNGSFTKLLVPYNS
GSNYGQWSGIGRTAVNTTLSGCTAALTTLFGKRLLSGHWNVTDVCNGLLGGFAAITAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /trānslation="MADADELMKTNGVKTQSSSVQTRLRSSVRLLRNPELTRELRRLK
DNNLNRKIDHDEKPEENPILLNEPKMIPRIRIVYKPKDDVERKMKDRLEAKQKLTELL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /tzanslation="wrmvollpkpllqugatpvelsrneignknllllihhagsllls
mpgndcliaapdkkgcltliasepdsyfenlvkdrugnyvvorliwgfkrtgidlphs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /translation="msGaltCsAadLsAtLGPnatAAaDyICGQLGsvnnKFTDAAYA
IDNTYLLFSAYLVFAMQLGFAMLCAGSVRAKNTMNIMLTNVLDAAAGGLFYYLFGYAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SNYGQWSGIGRTAVTTLSGCTAALTTLFGKRLLSGHWNVTDVCNGLLGGFAAITAGC
SVVDPWAAIVGGFVASLVLIGCNKCLAELLKYDDPLEAAQLHGGGGAWGLIFVGLFAKE
KYINEVYGASPGRHYGLFWGGGGKLLGAQLVQIIVJVGWVSATWGTLFFILKKLNILR
ISEQHEMRGWIDLAGGFAIYHDNDDDSIGYPGSPVPRAPNPPAV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /translation="MRPMVYRDFLGEMEYPGYSMPMQMEIDEDDFGPMDMQFEVGGIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SAAKNAEEVINGERDLKDLGGKFYRCAENLYGRDMLEIVKENHQRVLPAILNRLNQKL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          translation="MSGAITCSAADLATLLGPNATAAADYICGQLGTVNNKFTDAAFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REVILVRERLKPVLKQTIEKLSTRQRGSTAQESQVKTRTI"
complement (join (3781. .4009,4102. .4277))
/note="gene_id.K7M2.3
unknown procein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LTSVLVTRSIHLCKHRYGYQVIEAFDRSTRLA"
                                                                   'organism="Arabidopsis thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="ammonium transporter"
/protein_id="BAB02928.1"
/db_xref="GI:11994690"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
/codon_estart=1
/evidence=not_experimental
/product="ammonium transporter"
/protein_id="BAB02293.1"
/db_xref="GI:11994691"
                                                                                                                                                                                                                                                                                                                                                                       similar to unknown protein"
                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
/evidence=not_experimental
/protein_id="BAB02925.1"
/db_xref="G1:11994687"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /evidence=not_experimental
/protein_id="BAB02926.1"
/db_xref="G1:11994688"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /evidence=not_experimental
/protein_id="BAB02927.1"
/db_xref="GI:11994689"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PROMKPEDSDFFNKFEDDFDDSDIN"
complement(8640. .10130)
/note="gene_id:K7M2.5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement (13098. .14594)
/note="gb|AAD54638.1
                                                                                                                                                                                                                                                     /clone_lib="Mitsui TAC"
complement(1077. .2201)
/note="gb|AAF03494.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement (6378. .6587)
/note="gene_id:K7M2.4
unknown protein"
                                                                                             /mol_type="genomic_DNA"
/strain="Columbia"
                                                                                                                                                           /db_xref="taxon:3702"
      Location/Qualifiers
                                                                                                                                                                                           chromosome="3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1d: K7M2.6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      codon start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
                                                                                                                                                                                                                                                                                                                                                gene id:K7M2.2
                                                                                                                                                                                                                            /clone="K7M2"
                                      source
      FEATURES
                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Namerko, 1., Karo, 1., Saro, 1., Nakamura, Y., Asamizu, E. and Tabata, S. Direct Submission

Submitted (28-JUL-1999) Yasukazu Nakamura, Kazusa DNA Research
Institute, Department of Plant Gene Research; 1532-3, Yana,
Kisarazu, Chiba 292-0812, Japan (B-mail:ynakamu@kazusa.or.jp,
Tel:81-438-52-3935, Fax:81-438-52-3934)
Address for correspondence: kaos@kazusa.or.jp,
Por the latest information on annotation of this clone, please see
http://www.kazusa.or.jp/kaos/cgi.bin/agd_graph.cgirc=KYM2
Genes with similarity to proteins in the databases are described in
'product' or 'note' qualifiers. Genes that have no significant
protein similarity are described as 'unknown protein'.
The software programs used to predict genes include: Grail
(Informatics Group, Oak Ridge National Laboratory,
http://compbio.ornl.gov/Grail-1.3/),
GENSCAN (Chris Burge, MIT, http://CCR-081.mit.edu/GENSCAN.html),
NetGene2 (S.M. Hebsgaard, et al., CBS, Technical University of
Denmark, http://www.cbs.dtu.dk/services/NetGene2/) and
SplicePredictor (Volker Brendel, Stanford University,
http://gramliniariasatate.edu/cgi-bin/sp.cgi).
Genes encoding tRNAs are predicted by tRNAscan-SE
(Sean Eddy, Washington University School of Medicine, St. Louis,
http://gramminiaryare.edu/cdicted by tRNAscan-SE
(Sean Eddy, Washington University School of this clone. It may be shorter because we remove overlaps between neighboring submissions.
The 5' clone is Kl3K6 and the 3' clone is MXP5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Arabidopsis thaliana genomic DNA, chromosome 3, TAC clone:K7M2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Kaneko,T., Katoh,T., Sato,S., Nakamura,A., Asamizu,E. and Tabata,S. Structural analysis of Arabidopsis thaliana chromosome 3. II. Sequence features of the 4,251,695 bp regions covered by 90 P1, TAC and BAC clones
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
frame shifts in a coding region. A sequence is considered to be 5'-truncated if it lacks the translation initiation start (ATG). A sequence is considered to be 3'-truncated if it lacks the C-terminal end of the encoded protein. Please note that these cDNA sequences are derived from the Ws or LAer ecotypes and therefore
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta, Spermatophyta, Magnoliophyta, eudicotyledons, core eudicots, rosids, eurosids II, Brassicales, Brassicaceae, Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Kato, T., Sato, S., Nakamura, Y., Asamizu, E. and Tabata, S.
                                                                                                                                                 may contain polymorphisms when compared to sequences from Col-0. Genset carried out the library production and sequencing of the full-length clones. Ceres, Inc. carried out the clustering of the 5' sequences, selection of clones, and sequence assembly. Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1700 GCTTGTGTTGGCCATTCAGCTCGCCGCAGACCTCGCATGAGCCAGAT 1746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1585 GCTTGTTCGCCATTCAGCTCGCCGCAGACCTCGCATGAGCCAGAT 1631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 2324;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 8; Le
1.4e-13;
                                                                                                                                                                                                                                                                                                                1. .2324
/organism="Arabidopsis thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.4%; Score 47; DB 100.0%; Pred. No. 1.4 tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Arabidopsis thaliana (thale cress)
                                                                                                                                                                                                                                                                                                                                                                          /mol_type="mRNA"
/db_xref="taxon:3702"
/clone="17909"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DNA Res. 7 (3), 217-221 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AP000382.1 GI:5672513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (bases 1 to 80393)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   47; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BAC clones
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20363099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Caneko, T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .0907853
                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 15
AP000382/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORIGIN
```

g

CDS

```
EKYNEPARIVCAPRORANYI CHOKUTAENYOPERAGALGOODITAYOR EKYNEPARIVCAPRORANGENYOPERALIVOREDESAGUAGGARALIANIA (
RKIERDIBANGOADRINGENYERINGENYERINODESAGUAGGARATOR FILKELMIL
COMPLEMENT (1610.116.76. 1.2104,12290. .15970))

// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// coden = teart = 1
// cod
```

CDS

CDS

```
DDLPDNIDYACSLSDCTALCYGSSCNHLTATGNVSYAFNNYYQMHDQKTWDCDFLGLG
LITDEDPSDELCEFDVMIDTGDSTRLQPGSSRVLTRVAAAVLVMLVLPIL"
comptement (join (19325. 41163,41264. 41383,41523. 42962))
/note="contains similarity to DNA repair protein
gene_id:K7M2.11"
                                                                                                                                                                                                         ö
SIAPGTFERHWGIFEFDGRPKYELDLSGKGNDKPLVPVEDVKYLPKTWCILDPNAYNL
                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                         .
0
                                                                                                                                                                         Length 80393;
                                                                                                                                                          ; DB 8; her.,
'n. 0.001;
'0; Indels
                                                                                                                                                                1.5%; >cc.
100.0%; Pred. No. c.
... 0; Mismatches
                                                                                                                                                                                                                                                                             66765 AAGICIGACGITITCICATITGGCGTIGI 66737
                                                                                                                                                                                                                                           CATTTGGCGTTGT 1391
                                                                                                                      /evidence=not_experimental
/protein_id="BAB02934.1"
                                                                                                                                                                                                                                                                                                                                completed: May 12, 2004, 19:30:10
ne : 7366 secs
                                                                                                        /codon_start=1
                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                             1363 AAGTCTGACGTTT
                                                                                                                                                                                           Best Local Similarity
Matches 29; Conserv
                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                   Search con
Job time
                                                       CDS
                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                 ઠે
```

```
GenCore version 5.1.6 (c) 1993 - 2004 Compugen Ltd.
                  Copyright
```

- nucleic search, using sw model OM nucleic

May 12, 2004, 11:40:28 ; Search time 742 Seconds Run on:

(without alignments)
11130.050 Million cell updates/sec

1 atgtecteggegeegtetee......atagtggacettetetttaa 1944 US-10-086-464-1 Perfect score: Sequence:

OLIGO_NUC Gapop_60.0 , Gapext 60.0 Scoring table:

3373863 segs, 2124099041 residues Searched:

0 Word size : 6747726 Total number of hits satisfying chosen parameters:

DB seq length: 0 DB seq length: 200000000 Minimum Maximum

Post-processing: Listing first 45 summaries

geneseqn1990s:* geneseqn2000s:* geneseqn2001as:* N Geneseq 29Jan04:* geneseqn2001bs:* geneseqn2002s:* geneseqn2003bs:* geneseqn2003cs:* geneseqn2004s:* geneseqn2003as:* geneseqn1980s:* Database :

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result	9	Query		2	f	1
1	acore	MACCII	nengen		J	Description
	1944	100.0	1944	4	AAF77094	Aaf77094 Brassica
	1944	100.0	1944	σ	ACF36548	Acf36548 B. napus
	1944	100.0	2189	σ	ACF36549	Acf36549 B. napus
	99	3.4	1959	Q	ACF36557	Acf36557 A. thalia
	47	2.4	2324	ო	AAC36968	Aac36968 Arabidops
	26	1.3	1515	σ	ACF36555	Acf36555 Z. mays P
	26	1.3	110000	ო		Continuation (7 of
	26	1.3	110000	ო	AAF22305 07	Continuation (8 of
	24	1.2	1389	7	ADA70853	Ada70853 Rice gene
	24	1.2	1515	œ	ADA27371	Ada27371 HPV-16 L1
	24	1.2	1515	œ	ADA92549	Ada92549 HPV-16 L1
	24	1.2	1515	00	ADA14298	Ada14298 HPV-16 L1
	24	1.2	1515	00	AAD58571	Aad58571 HPV-16 L1
	23	1.2	897	7	AAD47597	Aad47597 Human HGF
	23	1.2	897	7	AAD47600	Aad47600 Human HGF
	23	1.2	897	7	AAD47598	Aad47598 Human HGF
	. 23	1.2	1005	7	ACF70783	Acf70783 Photorhab
	23	1.2	1281	7	AAD47599	Aad47599 Human HGF
	23	1.2	1572	ß	AAS84463	Aas84463 DNA encod
	23	1.2	3252	σ	ADB61530	Adb61530 Hepatocyt
	23	1.2	4173	σ	ADB61585	Adb61585 Hepatocyt
	23	1.2	4517	9	ABV99385	Abv99385 Human NOV
	23	1.2	4586	7	AAD48130	Aad48130 Human C-M

Aad47594 Human hep	Adc78858 Human PRO	Aav20444 Human c-m	Continuation (39 o	Continuation (10 o	Aad30797 Hansenula	Aag47060 ZmPK1 hom	Aaf44708 Novel pro	Abn59741 Novel hum	Aaf77095 Arabidops	Acf36550 Arabidops	Aad07043 Human DNA		Aaf22300 BAC conta	Adc87622 Human GPC	Adc87621 Human GPC	Abl86637 Human ova	Abx62007 Arabidops	Aaf97928 Human sec	Adb95095 A. thalia	Aac49631 Arabidops	Aad44411 Human hun
AAD47594	ADC78858	AAV20444	ACF67367_38	ACF65388_09	AAD30797	AAQ47060	AAF44708	ABN59741	AAF77095	ACF36550	AAD07043	AAF22304	AAF22300	ADC87622	ADC87621	ABL86637	ABX62007	AAF97928	ADB95095	AAC49631	AAD4411
7	0	~	7	7	9	7	4	9	4	σ	'n	m	m	0	σ	9	7	4	0	ب. س	9
4620	4620	4626	110000	110000	1119	1269	1949	2048	2880	2880	2891	50959	72592	222880	349938	213	432	609	657	772	1002
1.2	1.2	1.2	1.2	1.2	1.1	1.1	7.7	۲. ۲	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0
23	23	23	23	23	21	21	21	21	21	21	21	21	21	21	21	20	20	20	20	20	20
24	25	56	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
			υ									υ	υ			υ			υ	O	

ALIGNMENTS

BP. AAF77094 standard; DNA; 1944 (first entry) Brassica napus PERK1 DNA 17-MAY-2001 AAF77094;

Proline-rich extensin-like receptor kinase; PERK; resistance; plant;

dв.

Brassica napus.

WO200114563-A1.

01-MAR-2001

18-AUG-2000; 2000WO-CA000966. 99US-0149466P. 99US-0159122P. 19-AUG-1999; 13-OCT-1999;

(GORI/) GORING D. (SILV/) SILVA N.

Silva N; Goring D, WPI; 2001-244305/25.

New proline-rich, extensin-like receptor kinase nucleic acids and polypeptides useful for increasing plant wounding or pathogen resistance, or for producing transgenic plants with increased wounding or pathogen resistance.

Claim 6; Fig 1; 91pp; English.

The present invention relates to proline-rich extensin-like receptor kinase (PERK). The PERK nucleic acids and polypeptides are useful for increasing the resistance of plants to wounding and pathogens. These are also useful for producing transgenic plants with increased wounding and pathogen resistance compared with a wild type plant, as well as in assays for identifying and developing compounds to inhibit and/or enhance polypeptide function directly

Sequence 1944 BP; 464 A; 550 C; 459 G; 471 T; 0 U; 0 Other;

021 GGTGCCAAAGATTGCTTGTCTATGAGTTTGTTCCTAACAAATCTCGAGCTTCACCTC 1080 1021 GGTGCCAAAAGATTGCTTGTTTGTTCCTAACAAATCTCGAGCTTCACCTC 1080 1021 GGTGCCAAAAGATTGCTTGTTCTTATGTTCCTAAAATCTTCGAGCTTCACCTC 1080 1081 CATGGCGAGGACGGCCTACAATGGAATGGAATTGAAGATTGCTCTTGGATCT 1140 1141 GCTAAAGGACGTTCTTATCTTCATGAAGATTGCAATCAAAATCATTCACCGTGATATC 1200 1201 AAGGCTTCTAATGATAGATTTCAAGATTGCAATCATTCACCGTGATATC 1200 1201 AAGGCTTCTAAATTGATAGATTTCAAGTTTGCAATTTTGAAATTTTGAAATTTCAAGTTTTGAAGGTTTTTGGTTTT 1260 1201 AAGGCTTCAAAAATTTAATTTTAAGTTTTGAAGGTTTTGAAGGTTTTTGGTTTT 1260 1201 AAGGCTTCAAAAATTGATAGATTTCAAGTTTTGAAGGTTGCTGATTTTGGTCTT 1260 1201 AAGGCTTCAAACATATGATAGATTTCAAGTTTTGAAGGTTGCTGATTTTGGTCTT 1260 1201 CATAAAGATTGCTATACAAAACATATTCAAGTTTTCAAGTTTTTGGTCTT 1260 1261 GCTAAGATTGCTTGATACAAACATATTCAAAAATTCAAGATTTCAACGTTGCTGATTTTGGGC 1320 1261 GCTAAGATTGCTTGATACAAACACGCATGATATCAACACGTGTGTATTTTGGG 1320 1261 GCTAAGATTGCTTGATACAAACACGCAAGAAGTTTTCAACATTTTTGGA 1380 1321 1AACTTGGCTTCTGATACAAACCACGTGTAACACGTGTGAAGGTTTTCCAA 1380 1321 1AACTTGGCTTCTGATACAACCGCAAGAAGTTGCTGAAGGTTTTCCAA 1380 1321 1AACTTGGCTTCTGATACAACACGCAAGAAGTTGCTGAAGATTTTCCAA 1380 1321 1AACTTGGCTTCTGAATACCAACGCAAGAAGTTGCTGAAGATTTTCCAA 1380 1321 1AACTTGGCTTCTGAATACCTGCAAGAAGTTGCTGAAGATTTTCCAA 1380 1321 1AACTTGGCTTCTGAATACCTGCAAGAAGTTACCAACGAAGAAGTTTTCCAA 1380 1321 1AACTTGGCTTCTGAATACCTGCAAGAAGTTACCAACGAAGAAGTTTTTTCCAA 1380 1321 1AACTTGGCTTCTGAATACCTGCAAGAAGTTACCTGCAAGAAGTTTTTTCCAA 1380 1321 1AACTTGGCTTCTGAATACCTGCAAGAAGTTACCTGCAAGAAGTTTTTTCCAA 1380 1321 1AACTTGGCTTCTGAATACCTTCAACAACCTTTTTTTTTT	Db 1321 TATCTGGCTCCGGAATACGCTGCAGGGGAAGCTCCAGGAAGAGCTCTGCGGAAGAGCTCTGCGGAAGAGCTCTGCGGAAGAGCTCGCGGAAGAGCTCGCGGAAGAGCTCGCGCGAAGAGCTCGACGAAGAGCTCGACGAAGAGCTCGACGAAGAGCTCGAAGAAGATGTC 1440 Db 1381 TATGGCGTTTTGGAGCTCATTACTGGACGCCGTTGATGCCAACAATGTC 1440 Qy 1441 TATGTAGATGACGCTTAGTTGACGGCCACCATTGCTTAACCGAGCATCTGAGCAA 1500 Db 1441 TATGTAGATGACGCTTAGTTGACGGCACCACTGCTTAACCGAGCATCTGAGCAA 1500 Qy 1501 GGAGACTTTGAGCGTTTAGTTGACGGAAGAGAATGATGACAGAGAAGAAGAAGAAGAAGAAGAAGAAGAAGAAGAAG	0.0 1561 GCTCGCATGCTTGTGCTTGTGTTCGCCATTCAGCTCGCCGCAGACCTCGC 1620	Qy 1801 AACGCCACGGGTGAGTAATCCGACCAGTGACTGTACCCGTTGGTTCA 1860 Db 1801 AACGCCACGGGTGAGTAATCCGACCAGTGACTATGGACTGTACCCGTCTGGTTCA 1860 Qy 1861 AGCAGCGAGGGCCAAACCACGCGAATGGAGATGAGATTAAGAGAACCGGTCAG 1920 Db 1861 AGCAGCGAGGGCCAAACCACGCGAAATGGAGATGGGGAAGATTAAGAGAACCGGTCAG 1920 Qy 1921 GGTTATAGTGGACCTTCTCTTTAA 1944 Db 1921 GGTTATAGTGGACCTTCTCTTTAA 1944 Db 1921 GGTTATAGTGGACCTTCTCTTTAA 1944	RESULT 2
Ouery Match 100.0%; Score 1944; DB 4; Length 1944; Best Local Similarity 100.0%; Pred. No. 0; Matches 1944; Conservative 0; Mismatches 0; Indels 0; Gaps 1 ATGTCCTCGGCGCGTCTCCGGGGACTGGTTCGCCTCCACCATCTCCACCATCACACTCCACA 1 ATGTCCTCGGCGCGTCTCCGGGGACTGGTTCGCCTCCACCATCTCCACCATCACACTCCACACACTCCACACACTCCACACACTCCACACACTCCACACACTCCTC	OY 241 CCCGCTCCAACTACGCCCGGACCTCGTACTCCTACTCCTCAACCCCT 300 241 CCCGCTCCAACTACGCCCGGATCTCCACCGCACCTGTTACTCCTCTCACTCGAAACCCT 300 241 CCCGCTCCAACTACGCCCGGATCTCCACCGCACCTGTTACTCCTCCTCCTCGAAACCCT 300 301 CCACCTTCAGTCCCAGGACCACCGTCCAATCCTTCAGGGAGGAGATCTCCTCGACCT 360 301 CCACCTTCAGTCCCAGGACCACCGTCCAATCCTTCAGGGAGGAGGATCTCCTCGACCT 360 OY 361 CCATCTTCTCCCTCGCCGTCCTTCTTCCGACGGATTATCAACAGGAGTGGTGGTG 420 OY 421 GGAATCGCCACGGCGCGTCTCTTCTCCGACGGTTTATCAACAGGAGTGGTGGTG 420 OY 421 GGAATCGCCATCGGACGCCTTCTTCTCTTCTTCTTATTATCATCTCTTTTTTTT		Db 661 CCACGGCAACCTCCACCACCACCACCGCTTTCATGAGCAGCGGCGCTCCGAC 720	OY 901 GCTGTGAAGCAGTTGAAAGTTGGAAGTGGTCAGGGAGAGAGTTTCAGGCAGAGGTT 960 Db 901 GCTGTGAAGCAGTTGAAAGTTGGGAGAGAGAGAGAGAGTTTCAGGCAGAGGTT Db 901 GCTGTGAAGCATTGAAAGTTGGTCAGGAGAGAGAGAGAGTTTCAGGCAGAGGTT Qy 961 GAGATCATCAGCAGAGTTCACCACAGGCATCTGGTTGTTGTTTATTGCATCGCC 1

300 300 480 480 540 540 900 900 99

420

4

```
CCATCTCCACCAACTCCATCTACGCCGGGATCTCCACCTCCTCTTCCTCAGCCGTCTCCA 240
                                                                                                                                        CCACCTTCAGTCCCCAGGACCACCGTCCAATCCTTCACGCGAAGGAGGAGGATCTCCTCGACCT
                                    TACTCGGACCGTCCAGTTCTTCCTCCACGTCTCCAGGGCTTGTGTTAGGCTTCTCCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTGTGAAGCAGTTGAAAGTTGGGAGTGGTCAGGGAGAGGAGGAGTTTCAGGCAGAGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGTGCCAAAAGATTGCTTGTCTATGAGTTTGTTCCTAACAACAATCTCGAGCTTCACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTAAGATTGCTTCTGATACAACACGCATGTATCAACACGTGTGATGGGAACCTTTGGG
                                                                                                                  CCACCTTCAGTCCCAGGACCACCGTCCAATCCTTCACGCGAAGGAGGATCTCCTCGACCT
                                                                                                                                                                                                                                      CCATCTTCTCCCTCGCCGCCGTCTCCTTCTTCCGACGGTTTATCAACAGGAGTGGTGGTG
                                                                                                                                                                                                                                                                        GGAATCGCCATCGGAGGAGTCGCTCTGCTTGTGATAGTGACTCTGATTTGTCTCTCTGT
                                                                                                                                                                                                                                                                                                                                                      AAGAAGAAACGACGGAGAGGAAGAAGATGCTTACTATGTTCCTCCGCCACCTCCTT
                                                                                                                                                                                                                                                                                                                                                                        GGTCCCAAAGCCGGAGGACCTTACGGTGGACAGCAGCAACAATGGCGGCAACAAAACGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACACCACCGTCAGATCATGTCGTGACGTCACTACCACCACCACCTAAAGGCTCCATCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACACCACCGTCAGATCATGTCGTGACGTCACTACCACCACCTAAAGGCTCCATCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCACGCCAACCTCCTCCACCTCCACCGCCTTTCATGAGCAGCAGCGGCGGCTCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCACGGCAACCTCCTCCACCTCCACCGCCTTTCATGAGCAGCAGCGGCGGCTCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TACTCGGACCGTCCAGTTCTTCCTCCACCGTCTCCAGGGCTTGTGTTTAGGCTTCTCCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGCACTTTCACATACGAGGAGCTAGCTAGAGCCACCAATGGTTTCTCCGAGGCGAACTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGCACTTTCACATACGAGGAGCTAGCTAGACCACCAATGGTTTCTCCGAGGCGAACTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTAGGACAAGGCGGGTTCGGTTACGTGCACAAAGGTGTTGCCTAGTGGGAAAGAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTAGGACAAGGCGGGTTCGGTTACGTGCACAAGGTGTGTTGCCTAGTGGGAAAGAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGTGCCAAAAGATTGCTTGTCTATGAGTTTGTTCCTAACAACAATCTCGAGCTTCACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CATGGCGAGGGACGGCCTACAATGGAATGGAGCACCAGATTGAAGATTGCTCTTGGATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CATGGCGAGGGACGCCTACAATGGAATGGAGCACCAGATTGAAGATTGCTCTTGGATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTAAAGGACTTTCTTTCTTCATGAAGATTGCAATCCTAAAATCATTCACCGTGATATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTAAAGGACTTTCTTATCTTCATGAAGATTGCAATCCTAAAATCATTCACCGTGATATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAGGCTTCAAACATATTGATAGATTTTCAAGTTTTGAAGCTTGCTGATTTTTGGTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAGGCTTCAAACATATTGATATTTCAAGTTTGAAGCTAAGGTTGCTGATTTTTGGTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTAAGATTGCTTCTGATACAAACACGCATGTATCAACACGTGTGATGGGAACCTTTGGG
                                                                             241
                                                                                                                                                      301
                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                               421
                                                                                                                                                                                                                                                                                                                                                      481
                                                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                   541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1261
  181
                                        241
                                                                                                                  301
                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         961
                          8
                                                                   g
                                                                                                                  ò
                                                                                                                                                셤
                                                                                                                                                                                           ò
                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The invention relates to producing a transgenic plant having increased plant height, number of branches, number of seed pods and/or seed production compared to a non-transgenic plant, and/or quicker flowering or later sensescence compared to a non-transgenic plant. The method involves transforming a plant with a vector including a Proline-rich Extensin-like Receptor Kinase (PERK) nucleic acid molecule or a nucleic acid molecule having PERK activity. The method, as well as the PERK nucleic acid molecule and polypeptide, are useful in increasing plant resistance to wounding and pathogens and in increasing plant seed production. The nucleic acid molecule and polypeptide may also be used in producting transgenic plants or transgenic host cells. The present sequence represents a cDNA encoding a B. napus PERK1 receptor kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCATCCACTATTCCGACATCTCCTCCTCTTCTCGCTCTACACCTTCTGCTCCTT 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCATCCACTATTCCGACATCTCCTCCTTCTTCTCGCTCTACACCTTCTGCTCCTCT 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Producing a transgenic plant having an increased plant resistance, plant growth or seed production comprises transforming a plant with a nucleic acid molecule having a Proline-rich Extensin-like Receptor Kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCACCACTCCTCCTCCTCCTTCCGCTCCTCCTCCCACACCTTCTTCTCTCCTCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCATCTCCACCAACTCCATCTACGCCGGGATCTCCACCTCCTCTTCCTCAGCCGTCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATGTCCTCGGCGCCGTCTCCGGGGACTGGTTCGCCTCCATCTCCACCATCAAACTCCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCACCACTCCTCCTCCAGCTTCCGCTCCTCCTCCCACCACCTTCTTCTTCTCCTCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGICCTCGGCGCCGTCTCCGGGGACTGGTTCGCCTCCATCTCCACATCAACTCCACA
                                      transgenic; plant; proline-rich extensin-like receptor kinase; pathogen resistance; plant growth; seed production; gene; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                    1. .1944
/*tag= a
/bransl_except= (pos: 1332. .1334, aa: Phe)
/product= "PERK1"
/note= "Proline-rich Extensin-like Receptor Kinase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 9; Length 1944;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 1944 BP; 464 A; 550 C; 459 G; 471 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .0%; Score 1944;
.0%; Pred. No. 0;
0; Mismatches
receptor kinase encoding
                                      PERK1; transgenic; plant; proline-rich
                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Haffani YZ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 3; Fig 1A; 123pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 100.0%; Best Local Similarity 100.0%; Matches 1944; Conservative
                                                                                                                                                                                                                                                                                                                                                                                          28-FEB-2002; 2002CA-02373903
28-FEB-2002; 2002US-00086464
                                                                                                                                                                                                                                                                                                                                                      28-FEB-2003; 2003WO-CA000274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SILVA N.
HAFFANI Y Z.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2003-712727/67.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Silva N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                     GORING D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P-PSDB; ABR82937
  PERK1
                                                                                                                                                                                                                                                                          WO2003072763-A1
                                                                                               Brassica napus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                activity.
    napus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (SILV/)
(HAFF/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                     (GORI/)
                                                           wound;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Goring
                                                                                                                                        Key
```

1080 1080 1140 1140 1200

1020 1020

960

960

840

840

720 720 780 780

99

900

900

1260 1260 1320 1320

1200

g

ઠે

g

ℰ 요

ઠે

q

원 ∂ g à 요 중 음

ò

\$ A &

g ò g 8 g 8 g ઠે

```
The invention relates to producing a transgenic plant having increased plant height, number of branches, number of seed pods and/or seed production compared to a non-transgenic plant, and/or quicker flowering or later senescence compared to a non-transgenic plant. The method involves transforming a plant with a vector including a Proline-rich Extensin-like Receptor Kinase (PERK) nucleic acid molecule or a nucleic acid molecule having PERK activity. The method, as well as the PERK nucleic acid molecule and polypeptide, are useful in increasing plant resistance to wounding and pathogens and in increasing plant growth and seed production. The nucleic acid molecule and polypeptide may also be used in producing transgenic plants or transgenic host cells. The present sequence represents a cDNA encoding a B. napus PERK1 receptor kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCACCTTCAGTCCCAGGACCACCGTCCAATCCTTCACGCGAAGGAGGATCTCCTCGACCT 360
                                                                                                                                                                                                                                                                                                                                                                                                 Producing a transgenic plant having an increased plant resistance, plant growth or seed production comprises transforming a plant with a nucleic acid molecule having a Proline-rich Extensin-like Receptor Kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGGCTCCAACTACGCCCGGATCTCCACCCGCACCTGTTACTCCTCCTACTCGAAACCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 ACCACCACTCCTCCTCCAGCTTCCGCTCCTCCCACCACCACCTTCTTCTCCTCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCATCTCCACCAACTCCATCTACGCCGGGATCTCCACCTCCTCTTCCTCAGCCGTCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCCGCTCCAACTACGCCCGGATCTCCACCCGCACCTGTTACTCCTCCTACTCGAAACCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCACCTTCAGTCCCAGGACCACCGTCCAATCCTTCACGCGAAGGAGGATCTCCTCGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATGLCCTCGGCGCCGTCTCCGGGGACTGGTTCGCCTCCATCTCCACCATCAAACTCCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ccarccactarrecgacarcrecrecrecrretreregereracacerreregere
/note= "ABR82937; proline-rich Extensin-like Receptor
Kinase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 ATGTCCTCGGCGCCGTCTCCGGGACTGGTTCGCCTCCATCTCCACCATCAAACTCCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCATCCACTATTCCGACATCTCCTCCTCCTTCTCGCTCTACACCTTCTGCTCCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCATCTCCACCAACTCCATCTACGCCGGGATCTCCACCTCCTCTTCCTCAGCCGTCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 9; Length 2189;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 2189 BP; 544 A; 592 C; 494 G; 559 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%; Score 1944;
100.0%; Pred. No. 0;
ive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Fig 1D; 123pp; English.
                                                                                                                                                                                                                                                                                                                 Haffani YZ;
                                                                                                                                                                 28-FEB-2003; 2003WO-CA000274
                                                                                                                                                                                               28-FEB-2002; 2002CA-02373903
28-FEB-2002; 2002US-00086464
                                             2041. .2189
/*tag= d
                                                                                                                                                                                                                                                                                                                                                                P-PSDB; ABR82937, ABR82938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                 D, Silva N,
                                                                                                                                                                                                                                                                 (SILV/) SILVA N.
(HAFF/) HAFFANI Y Z.
                                                                                                                                                                                                                                                                                                                                               2003-712727/67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Local Similarity
Matches 1944; Conserv
                                                                                                                                                                                                                                                   GORING D.
                                                                                               WO2003072763-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Disclosure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       polypeptide
                                                                                                                                04-SEP-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                     activity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                 (GORI/)
                                                                                                                                                                                                                                                                                                                 Goring
                                              3'UTR
               음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠ
                                                                                                                                                                                                                                                                                                                                                                    1680
                                                                                                                                                                 TATGTAGATGACAGCTTAGTTGACTGGGCACGACCATTGCTTAACCGAGCATCTGAGCAA 1500
                                                                                                                                                                                           TATGTAGATGACAGCTTAGTTGACTGGGCACGACCATTGCTTAACCGAGCATCTGAGCAA 1500
                                                                                                                                                                                                                                GGAGACTTTGAGGGTTTAGCTGATGCAAGATGAATAATGGGTATGACAGAGAGGAGGTG 1560
                                                                                                                                                                                                                                                                                                                   ATGAGCCAGATTGTGCGTGCGTTAGAAGGAAATGTATCACTGTCAGATCTTAACGAAGGG 1680
                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGAGACCAGGTCAAAGCAATGTATACAGCTCATACGGAGGAAGCACCGATTATGACTCG 1740
                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGCCAGTACAATGAAGACATGAAGAAGTTTAGGAAAATGGCACTTGGAACTCAAGAGTAC 1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AACGCCACGGGTGAGTACAGTAATCCGACCAGTGACTATGGACTGTACCCGTCTGGTTCA 1860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGCAGCGAGGGCCAAACCACACGCGAAATGGAGATGGGGAAGATTAAGAGAACCGGTCAG 1920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGCAGCGAGGGCCAAACCACACGCGAAATGGAGATGGGGGAAGATTAAGAGAACCGGTCAG 1920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1. .2189
/*tag= c
/*tag= c
/*orde= "ABR82938; this protein contains the amino acids corresponding to 5' and 3'UTR regions, though only the relevant as residues (ABR82937) is used in the invention"
                               TACTTGGCTCCGGAATACGCTGCAAGCGGAAAGCTCACGGAGAAGTCTGACGTTTTCTCA
                                                  TACTTGGCTCCGGAATACGCTGCAAGCGGAAAGCTCACGGAGAAAGTCTGACGTTTTCTCA
                                                                                               TTTGGCGTTGTGCTTTTTGGAGCTCATTACTGGACGTCGACCCGTTGATGCCAACAATGTC
                                                                                                                    TTTGGCGTTGTTTTGGAGCTCATTACTGGACGTCGACCCGTTGATGCCAACAATGTC
                                                                                                                                                                                                                                                                                                                                                                    ATGAGCCAGATTGTGCGTGCGTTAGAAGGAAATGTATCACTGTCAGATCTTAACGAAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCTCGCATGGTTGCTTGCTGCGGCTTGTGTTCGCCATTCAGCTCGCCGCAGACCTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       transgenic; plant; proline-rich extensin-like receptor kinase; pathogen resistance; plant growth; seed production; gene; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /*tag= a
97..2040
/*tag= /
/transl except= (pos: 1332..1334, aa: I
/product= "PERK1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         napus PERK1 receptor kinase encoding cDNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGTTATAGTGGACCTTCTCTTTAA 1944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACF36549 standard; cDNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Brassica napus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18-DEC-2003
                                                                                                                                                                                                  1441
                                                                                                                                                                                                                                                                                                                                                                  1621
                                                                                                                                                                                                                                                                                                                                                                                                   1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1961
                                                                                               1381
                                                                                                                                1381
                                                                                                                                                                 1441
                                                                                                                                                                                                                                                                 1501
                                                                                                                                                                                                                                                                                                                                 1561
                                                                                                                                                                                                                                                                                                                                                                                                                                    1681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1801
                                                              1321
                                                                                                                                                                                                                                 1501
                                                                                                                                                                                                                                                                                                  1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACF36549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          wound;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5'UTR
```

120 216 180

156

9

240

336

276

300

396

8 6 8

8 6 8 6

```
1620
                                                                                                                                                                                                   1680
                                                                                                                                                                                                                                      1776
                                                                                                                                                                                                                                                                           1740
                                                                                                                                                                                                                                                                                                              1836
                                                                                                                                                                                                                                                                                                                                                   1800
                                                                                                                                                                                                                                                                                                                                                                                      1896
                                                                                                                                                                                                                                                                                                                                                                                                                             1860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Producing a transgenic plant having an increased plant resistance, plant growth or seed production comprises transforming a plant with a nucleic acid molecule having a Proline-rich Extensin-like Receptor Kinase activity.
                                                                                                                                                                                                                                                                                                                                                   AGCCAGTACAATGAAGACATGAAGAAGTTTAGGAAAATGGCACTTGGAACTCAAGAGTAC
                                                                       GGAGACTTTGAGGGTTTAGCTGATGCAAAGATGAATAATGGGTATGACGGAGAGGGGGATG
                                                                                                                          AACGCCACGGGGGGGACAGTAATCCGACCAGTGACTATGGACTGTACCCGTCTGGTTCA
TATGTAGATGACAGCTTAGTTGACTGGGCACGACCATTGCTTAACCGAGCATCTGAAGCAAA
                                                                                                                                                                                                     ATGAGCCAGATTGTGCGTGCGTTAGAAGGAAATGTATCACTGTCAGATCTTAACGAAGGG
                                                                                                                                                                                                                                                                         ATGAGACCAGGTCAAAGCAATGTATACAGCTCATACGGAGGAAGCACCGATTATGACTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGCAGCGAGGCCCAAACCACGCGAAATGGAGATGGGGAAGATTAAGAGAACCGGTCAG
                                                                                                                                                                                                                           ATGAGCCAGATTGTGCGTGCGTTAGAAGGAAATGTATCACTGTCAGATCTTAACGAAGGG
                                                    GGAGACTTTGAGGGTTTAGCTGATGCAAAGATGAATAATGGGTATGACAGAGGAGGAGATG
                                                                                                                                                                                                                                                                                                                                                                                                                             AACGCCACGGGTGAGTACAGTAATCCGACCAGTGACTATGGACTGTACCCGTCTGGTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              transgenic; plant; proline-rich extensin-like receptor kinase;
pathogen resistance; plant growth; seed production; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           genomic DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGTTATAGTGGACCTTCTCTTTAA 1944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A. thaliana PERK1 protein encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Haffani YZ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              standard; DNA; 1959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     28-FEB-2003; 2003WO-CA000274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      28-FEB-2002; 2002CA-02373903
28-FEB-2002; 2002US-00086464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Silva N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 2003-712727/67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SILVA N.
HAFFANI Y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GORING D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO2003072763-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18-DEC-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                04-SEP-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ď,
               1537
                                                    1501
                                                                                       1597
                                                                                                                              1561
                                                                                                                                                                 1657
                                                                                                                                                                                                     1621
                                                                                                                                                                                                                                        1717
                                                                                                                                                                                                                                                                           1681
                                                                                                                                                                                                                                                                                                                1777
                                                                                                                                                                                                                                                                                                                                                     1741
                                                                                                                                                                                                                                                                                                                                                                                        1837
                                                                                                                                                                                                                                                                                                                                                                                                                               1801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACF36557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACF36557;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (GORI/) (SILV/) (HAFF/) 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PERK1;
wound;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Goring
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 4
ACP 5557
AC ACP 5
AC ACP 5
AC ACP 5
AC ACP 5
AC ACP 5
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC ACP 6
AC 
                                                                                                                                                                                                                                                                                                        g
   셤
                                          8 6
                                                                                                                ઠે
                                                                                                                                                       임
                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                           음 장
                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                              임
                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1536
                                                                                                                                               540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTAGGACAAGGCGGGTTCGGTTACGTGCACAAAGGTGTTGCCTAGTGGGAAAGATT 900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           960
                                516
                                                                                                                                                                                    636
                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                          969
                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                      720
                                                                                                                                                                                                                                                                                                                                                                                                           816
                                                                                                                                                                                                                                                                                                                                                                                                                                                780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             936
                                                                   CCATCTTCTCCCTCGCCGCCGTCTTCTTCCGACGGTTTATCAACAGGAGTGGTG
                                                                                                                                                                                                                     GGTCCCAAAGCCGGAGGACCTTACGGTGGACAGCAACAATGGCGGCAACAAAACGCA
                                                                                                                                                                                                                                            GGTCCCAAAGCCGGAGGACCTTACGGTGGACAGCAGCAACAATGGCGGCAACAAAACGCA
                                                                                                                                                                                                                                                                                               ACACCACCGTCAGATCATGTCGTGACGTCACTACCACCACCTACGACCTCCATCTCCA
                                                                                                                                                                                                                                                                                                                CCACGGCAACCTCCTCCACCTCCACCACCGCCTTTCATGAGCAGCAGCAGCGGCGCCTCCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TACTCGGACCGTCCACTTCTTCCTCCACCGTCTCCAGGGCTTGTGTTAGGCTTCTCCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCTGTGAAGCAGTTGAAAGTTGGGAGTCAGGGAGAGAGGGAGTTTCAGGCAGAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGIGCCAAAAGATTGCTTGTCTATGAGTTTGTTCCTAACAACAATCTCGAGCTTCACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGTGCCAAAAGATTGCTTGTCTATGAGTTTGTTCCTAACAACAACAATCTCGGGCTTCACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCTAAAGGACTTTCTTATCTTCATGAAGATTGCAATCCTAAAATCATTCACCGTGATATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TACTTGGCTCCGGAATACGCTGCAAGCGGAAAGCTCACGGAGAAGTCTGACGTTTTCTCA
CCATCTTCTCCCTCGCCGCCGTCTCCTTCCGACGGTTTATCAACAGGAGTGGTGGTG
                                                                                                                                               AAGAAGAAACGACGGAGAGGAGGAAGATGCTTACTATGTTCCTCCGCCACCTCCTCCT
                                                                                                                                                                 CCACGGCAACCTCCTCCACCTCCACCACCGCCTTTCATGAGCAGCAGCGGCGGCTCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                TACTOGGACCGTCCACTTCCTCCACCGTCTCCAGGGCTTGTGTTAGGCTTCTCCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGCACTITCACATACGAGGAGCTAGCTAGAGCCACCAATGGTTTCTCCGAGGCGAACTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CATGGCGAGGGACGCCTACAATGGAATGGAGCACCAGATTGAAGATTGCTCTTGGATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TACTTGGCTCCGGAATACGCTGCAAGCGGAAAGCTCACGGAGAAGTCTGACGTTTTCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAGGCTTCAAACATATTGATAGATTTCAAGTTTGAAGCTAAGGTTGCTGATTTTTGGTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1477
                                                                     121
                                                                                                        517
                                                                                                                                             481
                                                                                                                                                                                  577
                                                                                                                                                                                                                                                          637
                                                                                                                                                                                                                                                                                                                                  697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1261
361
                                457
                                                                                                                                                                                                                       541
                                                                                                                                                                                                                                                                                               601
                                                                                                                                                                                                                                                                                                                                                                      661
                                                                                                                                                                                                                                                                                                                                                                                                         757
                                                                                                                                                                                                                                                                                                                                                                                                                                                721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   196
```

8 6 8 6

6 6 6 6 6 6

8 & 8

8 6 8 6

8 6 8 6

ઠ

 $x_xxyyyyyyyxx$

```
9908-0132487P

9908-0132863P

9908-0134218P

9908-0134219P

9908-0134219P

9908-0134219P

9908-0134219P

9908-0134221P

9908-013432P

9908-013432P

9908-013432P

9908-013533P

9908-013533P

9908-013532P

9908-013532P

9908-013532P

9908-013532P

9908-013532P

9908-013532P

9908-013532P

9908-0139452P

9908-0140323P

9908-0140323P

9908-0140323P

9908-014233P

9908-014333P

9908-014333P

9908-0143332P

9908-0144333P

9908-0144333P

9908-0144333P

9908-0144333P

9908-0144333P

9908-0144333P

9908-0144333P

9908-0144333P

9908-0144333P

9908-0144333P

9908-0144332P

9908-0144332P

9908-0144333P
                               14-MAY-1999;
14-MAY-1999;
14-MAY-1999;
14-MAY-1999;
                                                                                                                                                                                                                                                                                                        18-JUN-1999;
                                                                                  19-MAY-1999;
                                                                                                                                                                               04-JUN-1999
                                                                                                                                                                                                    08-JUN-1999
                                                                                                                                                                                                                                   14-JUN-1999
                                                                                                                                                                                                                                                                           8-JUN-1999
            07-MAY-1999
11-MAY-1999
                                                                                                        21-MAY-1999
                                                                                                                   MAY-1999
                                                                                                                                      MAY-1999
                                                                                                                                                            01-JUN-1999
                                                                                                                                                                                           07-JUN-1999
                                                                                                                                                                                                                                                                                                                               8-JUN-1999
                                                                                                                                                                                                                                                                                                                                         8-JUN-1999
                                                                                                                                                                                                                                                                                                                                                            8-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                    3-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             30-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                           -JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                      - - NUC- 1999
                                                                                                                                                                                                                                                                                                                                                                                                                12-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                          3-JUN-1999
                                                                                                                                                                                                                                                      16-JUN-1
    1432 AACAATGTCTATGTAGATGACAGCTTAGTTGACTGGGCACGACCATTGCTTAACCGAGCA 1491
                                                                                                                                                                                                                                             1447 AACAATGTCTATGTAGATGACAGCTTAGTTGACTGGGCACGACCACTGCTTAACCGAGCA 1506
                             The invention relates to producing a transgenic plant having increased plant height, number of branches, number of seed pods and/or seed production compared to a non-transgenic plant, and/or quicker flowering or later sensescence compared to a non-transgenic plant. The method involves transforming a plant with a vector including a Proline-rich Extensin-like Receptor Kinase (PERK) nucleic acid molecule or a nucleic acid molecule having PERK activity. The method, as well as the PERK nucleic acid molecule and polypeptide, are useful in increasing plant resistance to wounding and pathogens and in increasing plant seed production. The nucleic acid molecule and polypeptide may also be used in producting transgenic plants or transgenic host cells. The present sequence represents an A. thaliana PERKI DNA (At3g24550)
                                                                                                                                                                                                                                                                                                                                                                                                                                  Hybridisation assay; genetic mapping; gene expression control; protein identification; signal transduction pathway; metabolic pathway; promoter; termination sequence; ss.
                                                                                                                                                                                                               Gaps
                                                                                                                                                                                         y Match 3.4%; Score 66; DB 9; Length 1959; Local Similarity 100.0%; Pred. No. 2.1e-20; nes 66; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                       Seguence 1959 BP; 496 A; 514 C; 425 G; 524 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                Arabidopsis thaliana DNA fragment SEQ ID NO: 15710.
            Disclosure; Fig 21d; 123pp; English
                                                                                                                                                                                                                                                                                                                                                   AAC36968 standard; DNA; 2324 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-0121825P.
99US-0123180P.
99US-0125788P.
99US-012664P.
99US-0126785P.
99US-01267462P.
99US-012874P.
99US-012874P.
99US-0130891P.
99US-0130891P.
99US-0130891P.
99US-013048P.
99US-0132467P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           25-FEB-2000; 2000EP-00301439
                                                                                                                                                                                                                                                                                                                                                                                            (first entry)
                                                                                                                                                                                                                                                                                                1507 TCTGAG 1512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Arabidopsis thaliana
                                                                                                                                                                                                                                                                            1492 TCTGAG 1497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EP1033405-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         05-MAR-1999;
09-MAR-1999;
23-MAR-1999;
25-MAR-1999;
01-APR-1999;
06-APR-1999;
16-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                            17-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19-APR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       06-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  23-APR-1999
                                                                                                                                                                                                                                                                                                                                                                       AAC36968;
                                                                                                                                                                                           Query Match
                                                                                                                                                                                                      Best Loca
Matches
                                                                                                                                                                                                                                                                                                                              RESULT 5
                                                                                                                                                                                                                                                   요
```

à

ô

```
RR 22-JUL-1999; 99105-0145132P.

RR 23-JUL-1999; 99105-0145145P.

RR 27-JUL-1999; 99105-0145145P.

RR 27-JUL-1999; 99105-014514P.

RR 27-JUL-1999; 99105-0145513P.

RR 27-JUL-1999; 99105-0145513P.

RR 27-JUL-1999; 99105-0145513P.

RR 27-JUL-1999; 99105-0145513P.

RR 02-AUG-1999; 99105-0145513P.

RR 02-AUG-1999; 99105-014513P.

RR 02-AUG-1999; 99105-014732B.

RR 03-AUG-1999; 99105-014732B.

RR 10-AUG-1999; 99105-014732B.

RR 10-AUG-1999; 99105-014732B.

RR 11-AUG-1999; 99105-014732B.

RR 11-AUG-1999; 99105-014732B.

RR 11-AUG-1999; 99105-014733B.

RR 11-AUG-1999; 99105-014931B.

RR 23-AUG-1999; 99105-014931B.

RR 21-AUG-1999; 99105-0155639P.

RR 21-AUG-1999; 99105-0155639P.

RR 21-AUG-1999; 99105-0155639P.

RR 21-AUG-1999; 99105-0155639P.

RR 21-AUG-1999; 99105-0155639P.

RR 21-AUG-1999; 99105-0155639P.

RR 21-AUG-1999; 99105-0155639P.

RR 21-AUG-1999; 99105-0155639P.

RR 21-AUG-1999; 99105-0155639P.

RR 21-AUG-1999; 99105-0155639P.

RR 11-AUG-1999; 99105-0155639P
```

```
Producing a transgenic plant having an increased plant resistance, plant growth or seed production comprises transforming a plant with a nucleic acid molecule having a Proline-rich Extensin-like Receptor Kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The invention relates to producing a transgenic plant having increased plant height, number of branches, number of seed pods and/or seed production compared to a non-transgenic plant, and/or quicker flowering or later sensescence compared to a non-transgenic plant. The method involves transforming a plant with a vector including a Proline-rich Extensin-like Receptor Kinase (PERK) nucleic acid molecule or a nucleic acid molecule having PERK activity. The method, as well as the PERK nucleic acid molecule and polypeptide, are useful in increasing plant resistance to wounding and pathogens and in increasing plant growth and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                PERK1; transgenic; plant; proline-rich extensin-like receptor kinase; wound; pathogen resistance; plant growth; seed production; maize; gene;
                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                          1700 GCTTGTGTTCGCCATTCAGCTCGCCGCAGACCTCGCATGAGCCAGAT 1746
                                                                                                                                                                                                        Length 2324;
                                                                                                                                                                                                                                                         1585 GCTTGTGTTCGCCATTCAGCTCGCCGCAGACCTCGCATGAGCCAGAT
                                                                                                                                                                                                     2.4%; Score 47; DB 3; L
100.0%; Pred. No. 1.7e-11;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                      Z. mays PERK protein encoding genomic DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Disclosure, Fig 21b; 123pp; English.
                                                                                                                                                                                                                                                                                                                                                         ACF36555 standard; DNA; 1515 BP
99US-0160815P.
99US-0160980P.
99US-0160981P.
99US-0161404P.
99US-0161406P.
99US-016136P.
99US-016136P.
99US-016136P.
99US-016136P.
99US-016192P.
99US-016192P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    28-FEB-2003; 2003WO-CA000274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28-FEB-2002; 2002CA-02373903
28-FEB-2002; 2002US-00086464
                                                                                                                                                                                                                                                                                                                                                                                                             18-DEC-2003 (first entry)
                                                                                                                                                                                                                                 47; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SILVA N.
HAFFANI Y Z.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Silva N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2003-712727/67
                                                                                                                                                                                                                    Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GORING D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO2003072763-A1.
            22-0CT-1999;
22-0CT-1999;
22-0CT-1999;
25-0CT-1999;
26-0CT-1999;
26-0CT-1999;
28-0CT-1999;
28-0CT-1999;
                                                                                                                                                                            29-OCT-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           04-SEP-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'n
                                                                                                                                                                                                                                                                                                                                                                                  ACF36555;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Zea mays.
                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (SILV/)
(HAFF/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (GORI/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Goring
                                                                                                                                                                                                                       Best Local
Matches
  ****
                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                    ઠે
```

ઠે В

```
The present invention relates to a method (M1) for identifying genes involved in plant resistance or response to pathogenic infection. M1 comprises identifying a gene whose expression is significantly altered in the incompatible interaction of plant gene expression relative to expression of the gene in an unlinfected plant, in a mutant plant that does not express a gene associated with response to pathogenic infection, or in a corresponding incompatible or compatible interaction. (M1) is useful for conferring resistance to resistance or tolerance to a plant to bacterial, fungal or viral infection. The present sequence was used to illustrate the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cell line; American Type Culture Collection PTA-4047; ATCC-4047; baculoviruses; viral recombinant protein; virus-like particle; vaccine; diagnostic reagent; human papillomavirus type 16; HPV-16; L1; gene; ds.
                                                                                                                                                                                                                                                                                                                                                        Identifying at least one gene involved in plant resistance or response pathogenic infection for conferring resistance or tolerance to a plant bacterial, fungal or viral infection by determining or detecting plant
                                                                    bacterial infection; fungal infection; viral infection; rice;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 7; Length 1389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 1389 BP; 412 A; 278 C; 406 G; 293 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                      Goff SA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HPV-16 L1 codon optimised DNA seguence SEQ ID NO:1.
                                                                                                                                                                                                                                                                                      Glazebrook J, Goff
Whitham S, Xie Z,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Prec. ...
                                                                                                                                                                                                                                                                                                                                                                                                                               Claim 6; SEQ ID NO 4176; 899pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1.2%; Score 24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
1. .1515
                                                                                                                                                                                                                                                           (SYGN ) SYNGENTA PARTICIPATIONS AG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     670 CCTCCTCCACCTCCACCACCGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCTCCTCCACCTCCACCACCGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BP.
                                                                                                                                                                                                                                                                                      Cooper B, S, Tao Y,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Synthetic.
Human papillomavirus type 16.
                                                                                                                                                                                                    22-JUN-2001; 2001WO-IB001105.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADA27371 standard; DNA; 1515
                                                                                                                                                                                                                               22-JUN-2001; 2001WO-IB001105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                20-NOV-2003 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                          Rice gene, SEQ ID 4176
                                                                                                                                                                                                                                                                                                   Quan S,
                                                                                                                                                                                                                                                                                                                              WPI; 2003-175290/17.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
nes 24; Conserv
                                                                                                                                                                                                                                                                                       Chen W,
                                                                                                                                                                                                                                                                                                                                                                                                   gene expression.
                                                                                                                                            WO2003000898-A1
                                                                                                                 Oryza sativa
                                                                                                                                                                                                                                                                                       Chang H, Ch
Katagiri F,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20-NOV-2003
                                                                                                                                                                        03-JAN-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADA27371:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                       Plant;
                                                                                        gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Key
    LHX SOS X M M M X E X LI X Y X Y X I I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               d
                                                                                                                                                                                                                                                              O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 com base 700001 (Arabidopsis thaliana chromosome 4 LOCUS AAF22305 Accession Aaf22305
                                                                                                                                                                                                                                                             AAF22305 from base 600001 (Arabidopsis thaliana chromosome 4 fragments LOCUS AAF22305 Accession Aaf22305
                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
seed production. The nucleic acid molecule and polypeptide may also be used in producing transgenic plants or transgenic host cells. The present sequence represents a Z. mays PERK protein encoding genomic DNA (TIGR Accession No. AY108241)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ô
                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 3; Length 110000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 26; DB 3; Length 110000;
                                                                                                1.3%; Score 26; DB 9; Length 1515;
100.0%; Pred. No. 0.12;
tive 0; Mismatches 0; Indels
                                                                        Sequence 1515 BP; 400 A; 330 C; 381 G; 404 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1.3%; Scc.
100.0%; Pred. No. c...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. 0.1
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 109643 CTTGTCTATGAGTTTGTTCCTAACAA 109618
                                                                                                                                                            1231 TTTGAAGCTAAGGTTGCTGATTTTGG 1256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1036 CTTGTCTATGAGTTTGTTCCTAACAA 1061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1036 CTTGTCTATGAGTTTGTTCCTAACAA 1061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9643 CTTGTCTATGAGTTTGTTCCTAACAA 9618
                                                                                                                                                                                       601 TTTGAAGCTAAGGTTGCTGATTTTGG 626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         110000
210000
310000
410000
                                                                                                                                                                                                                                                                                                                                                                       610000
710000
810000
910000
1010000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              710000
810000
910000
                                                                                                                                                                                                                                                                                                   110000
210000
310000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1010000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  610000
                                                                                                                                                                                                                                                                                                                                                              510000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1.32,
100.0%; Pic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADA70853 standard; DNA; 1389 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                fragments
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAF22305
                                                                                                                                                                                                                                                                                                                                                           400001
500001
600001
700001
800001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     200001
300001
500001
600001
700001
800001
                                                                                                                                                                                                                                                                                                                                 200001
                                                                                                                                                                                                                                                                                                                                                                                                                                 900001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100001
                                                                                                                                                                                                                                                                                         Begin
                                                                                                                                                                                                                                                                                                                   100001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Begin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              26; Conservative
                                                                                                                                26; Conservative
                                                                                                                                                                                                                                                             11 of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 g
                                                                                                                                                                                                                              RESULT 7
AAF22305 06/C
Continuation (7 of 11) of
WP Sequence split into 11
WP AAF22305 00
WP AAF22305 01
WP AAF22305 02
WP AAF22305 02
WP AAF22305 03
WP AAF22305 06
WP AAF22305 06
WP AAF22305 06
WP AAF22305 06
WP AAF22305 06
WP AAF22305 07
WP AAF22305 07
WP AAF22305 07
WP AAF22305 07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 8
AAF22305 07/C
Continuation (8 of 11) of
WP Sequence split into 11
WP AAF22305 00
WP AAF22305 02
WP AAF22305 02
WP AAF22305 03
WP AAF22305 05
WP AAF22305 06
WP AAF22305 06
WP AAF22305 09
WP AAF22305 09
WP AAF22305 09
WP AAF22305 09
WP AAF22305 09
WP AAF22305 09
WP AAF22305 09
                                                                                                    Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local Similarity
                                                                                                                                                                                                                                                                                      Fragment Name

AAF22305 00

AAF22305 01

AAF22305 02

AAF22305 04

AAF22305 05

AAF22305 06

AAF22305 08

AAF22305 08

AAF22305 08

AAF22305 09

AAF22305 09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ma.
Local S...
26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADA70853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 9
ADA70853/c
ID ADA708
XX
AC ADA708
                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
```

Query

g

8

8

ö

Gaps

ö

t 2

ö

Hou Y; I, Zou

codon optimised; viral capsid protein; virus-like particle; VLP; antigenic; human papillomavirus infection; virucide; vaccine; gene therapy; human papillomavirus type 16; dysplasia; infection; HPV-16;

L1; gene; ds

HPV-16 L1 codon optimised DNA sequence SEQ ID NO:1.

```
The present invention describes a cell line comprising a cell that is a close, derivative, mutant and/or transfectant of a cell line designated American Type Culture Collection (ATCC) PTM-4047. The cell line designated grows continuously and retains the identifying characteristics of the cell line designated ATCC-4047. Also described is a process of making a cell line the insect cell line is useful in replicating baculoviruses, as a host substrate for baculovirus laque assays, as a source of insect proteins, acts as a depot for cell transfection to produce recombinant baculoviruses, and in expressing viral recombinant proteins.

Extracellular and intracellular viral recombinant proteins and virus-like particles expressed from the cell line are useful as pharmaceutical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          represents a human papillomavirus type 16 ({\tt HPV-16}) Il codon optimised sequence, which is used in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           New insect cell line designated ATCC PTA-4047, useful for replicating baculoviruses to produce large amounts of recombinant proteins of medical, pharmaceutical and veterinary importance.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      compositions, vaccines or diagnostic reagents. The present sequence represents a human papillomavirus type 16 (HPV-16) L1 codon optimise
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 1515 BP; 297 A; 632 C; 308 G; 278 T; 0 U; 0 Other;
                                 /transl_except= (pos:208. .210,aa:Tyr)
/transl_except= (pos:295. .297,aa:Val)
                 protein"
                 product= "HPV-16 L1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Claim 10; Fig 1; 63pp; English.
                                                                                                                                                                                                                                 2002US-0356123P.
2002US-0356134P.
2002US-0356133P.
2002US-0356133P.
2002US-0356150P.
2002US-0356152P.
2002US-0356152P.
2002US-0356152P.
                                                                                                                                                                                                                                                                                                                                                                         2002US-0356156P.
2002US-0356157P.
2002US-0356161P.
                                                                                                                                                                                 2002US-0356113P.
2002US-0356118P.
2002US-0356119P.
                                                                                                                                                    14-FEB-2003; 2003WO-US004516
                                                                                                                                                                                                                                                                                                                                                                                                                            2002US-0356162P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2003-646475/61.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               (NOVA-) NOVAVAX INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  P-PSDB; ADA27363
                                                                                 WO2003068804-A2
                                                                                                                                                                                                                                                                                                                       14-FEB-2002; 2
14-FEB-2002; 2
14-FEB-2002; 2
                                                                                                                                                                                                                                                    14-FEB-2002;
14-FEB-2002;
                                                                                                                                                                                                                                                                                        14-FEB-2002;
                                                                                                                                                                                                                                                                                                    14-FEB-2002;
                                                                                                                                                                                                                                                                                                                                                                         14-FEB-2002;
                                                                                                                                                                                                                                   14-FEB-2002;
                                                                                                                                                                                                                                                                                                                                                                                            14-FEB-2002;
                                                                                                                                                                                                                       14-FEB-2002;
                                                                                                                                                                                                     14-FEB-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Robinson RA;
                                                                                                                  21-AUG-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI;
```

```
The present invention describes a codon optimised polynucleotide encoding a viral capsid protein that self assembles into a virus-like particle ("U.D) that exhibits conformational antigenic epitopes capable of raising neutralising antibodies, where the VUP is expressed from a host cell extracellularly. Also described: (1) a vector comprising the above codon optimised polynucleotide operably liked to a eukaryotic or prokaryotic or prokaryotic regulatory control element, capable of replication in prokaryotic and/or cukaryotic host; (2) a host cell comprising the vector; (3) a pharmaceutical or vaccine composition for treating, ameliorating or preventing a papillomavirus related disease or disorder, comprising a carrier, diluent or adjuvant; (4) a diagnostic kit for detecting a carrier, diluent or adjuvant; (4) a diagnostic kit for detecting a carrier, diluent or adjuvant; (4) a diagnostic kit for detecting a carrier, diluent or adjuvant; (5) a method for preparing the above codon optimised conformational antigenic epitopes, and a detection agent comprising a detectable label; (5) a method for preparing the above codon optimised polynucleotide, comprising replacing codons that are underutilised in insect cells with codons that are utilised at high levels in insect cells, to create an initially-modified nucleotide sequence, and modifying the initially-modified nucleotide sequence by choosing a preferred codon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           New codon optimized polynucleotide encoding a viral capsid protein that self assembles into a virus-like particle, useful for diagnosing, preventing or treating human papillomavirus infections or associated

    1515
    /*tag= a
    /product= "codon optimised L1 amino acid sequence"

                                                                                                                                                                                                                                                          /transl_except= (pos:208. .210,aa:Tyr)
/transl_except= (pos:295. .297,aa:Val)
                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 7; Page 113; 123pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2002US-0356133P.
2002US-035613SP.
2002US-03561SDP.
2002US-03561SJP.
2002US-03561SAP.
2002US-03561SAP.
2002US-03561SAP.
2002US-03561SAP.
2002US-03561SAP.
                                                                                                                                                                                                                                                                                                                                                                                                                                   2002US-0356118P.
2002US-0356119P.
2002US-0356123P.
2002US-0356126P.
                                                                                                                                                      Human papillomavirus type 16.
                                                                                                                                                                                                                                                                                                                                                                                  14-FEB-2003; 2003WO-US004480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2002US-0356162P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 2003-689664/65.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (NOVA-) NOVAVAX INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            P-PSDB; ADA92541
                                                                                                                                                                                                                                                                                                                 WO2003068933-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14-FEB-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14-FEB-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                14-FEB-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4-FEB-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14-FEB-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14-FEB-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14-FEB-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14-FEB-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14-FEB-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14-FEB-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Robinson RA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4-FEB-2002
                                                                                                                                                                                                                                                                                                                                                 21-AUG-2003
                                                                                                                                      Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   disorders
                                                                                                                                                                                         Key
```

ö

Gaps

ö

8; Length 1515; 0; Indels

1.2%; Scor. 100.0%; Pred. No. 1, ... 0; Mismatches

692

1471 ACCTCCTCCACCTCCACCACCGCC 1494

ADA92549 standard; DNA; 1515 BP.

RESULT 11 ADA92549 (first entry)

20-NOV-2003

ADA92549;

SXXXX

669 ACCTCCTCCACCTCCACCACCGCC

24; Conservative

Matches

ઠે 셤

Query Match Best Local Similarity

```
for the initially-modified sequence, where the ratio of GC nucleotide pairs to AT nucleotide pairs in the further-modified nucleotide sequence trends towards about 1:1, where the number of palindromic and stem-loop DNA structures in the further-modified nucleotide sequence is minimised, and where the number of transcription and post-transcription repressor elements are minimised, and (6) methods for treating, ameliorating or preventing a papillomavirus related disease or disorder, or for protecting an individual against a papillomavirus infection, comprising administering to an individual an amount of the composition or vaccine cited above. The VLP has virucide activity and can be used in vaccines and in gene therapy. The composition and methods of the present invention are useful in diagnosing, preventing or treating human papillomavirus infections or associated disorders, such as dysplasia. The present
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               purification; recombinant extracellular virus-like particle; recombinant intracellular virus-like particle; virus-like particle; virus-like particle; virus-like particle; virus-like particle; virucide; vaccine; gene therapy; human papillomavirus; HPV; infection; dysplasia; HPV-16; L1; codon optimised; gene; ds.
                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                               ..
0
                                                                                                                                                                                                                                                                          Sequence 1515 BP; 297 A; 632 C; 308 G; 278 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                            1.2%; Score 24; DB 8; Length 1515;
                                                                                                                                                                                                                                                                                                                                             0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /transl_except= (pos:\(\bar{2}08\). 210, aa:Tyr)
/transl_except= (pos:\(295\). 297, aa:Val)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HPV-16 L1 codon optimised sequence SEQ ID NO:1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein"
                                                                                                                                                                                                                                                                                                                           100.0%; Pred. No. 1; tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                   ACCTCCTCCACCTCCACCACGCC 1494
                                                                                                                                                                                                                                                                                                                                                                              669 ACCICCICCACCICCACCACCGCC 692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      product= "HPV-16 L1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADA14298 standard; DNA; 1515 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14-FEB-2002; 2002US-0356123P.
14-FEB-2002; 2002US-0356126P.
14-FEB-2002; 2002US-0356131P.
14-FEB-2002; 2002US-0356135P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2002US-0356150P.
2002US-0356151P.
2002US-0356152P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2002US-0356118P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               14-FEB-2002; 2002US-0356156P.
14-FEB-2002; 2002US-0356157P.
14-FEB-2002; 2002US-0356161P.
14-FEB-2002; 2002US-0356162P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human papillomavirus type 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2002US-0356154P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14-FEB-2003; 2003WO-US004474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /*tag= a
                                                                                                                                                                                                                                                                                                                           Local Similarity 100.
nes 24; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        . .1515
                                                                                                                                                                                                                                         the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO2003068993-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14-FEB-2002; 2
14-FEB-2002; 2
14-FEB-2002; 2
14-FEB-2002; 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14-FEB-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   06-NOV-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21-AUG-2003
                                                                                                                                                                                                                                                                                                                                                                                                              1471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADA14298;
                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADA14298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
       ð
```

```
The present invention describes a method for purifying a recombinant extracellular or intracellular virus-like particle (VLP). The method comprises harvesting a cell supension comprising cells containing a plurality of VLPs to produce a harvested supernatant, optionally disrupting the harvested supernatant, concentrating the clarified supernatant, diafiltering the concentrated supernatant, and recovering the purified recombinant VLP. Also described: (1) a cell line designated as Sf-95 deposited as American Type Culture Collection (AVC) PTA-4047; (2) producing the cell line described above; (3) host cells that express one or more recombinant gene products with an enhanced yield; (4) producing a foreign protein in an insect cell; (5) nucleic acid sequences that correspond to and code for human papillomavirus (HPV) polypeptides; and (6) pharmaceutical compositions comprising an amount of the cerombinant viral gene products, VLPs, agonists, antagonists, or the correspond to and code for human appillomavirus (HPV) polypeptides; and (6) pharmaceutical compositions comprising an autagonists, or the correspond to and code for human appillomavirus (HPV) polypeptides; and (6) pharmaceutical compositions comprising an autagonists, or the combinant viral gene products, VLPs, agonists, including VLPs, in isolating and purifying expressed viral gene products, including VLPs, in viru. The gene products or particles may be used in detecting, containing or treating PPV infections and associated symptoms like dysplasia. The present sequence represents an HPV-16 LI codon optimised including the present in the exemplification of the present
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                      Purifying a recombinant human papillomavirus (HPV) L1, useful for diagnosing, preventing or treating HPV infections, comprises clarifying, concentrating and diafiltering cells containing HPV particles.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Vaccine; humoral immunity; cell-mediated immunity; gene therapy; HPV; virucide; papillomavirus infection; gene; Human papillomavirus; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Match 1.2%; Score 24; DB 8; Length 1515; Local Similarity 100.0%; Pred. No. 1; les 24; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 1515 BP; 297 A; 632 C; 308 G; 278 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /*tag= a
/product= "HPV-16 L1 protein"
/trans1 except= (pos:208. .210, aa:Tyr)
/trans1 except= (pos:295. .297, aa:Val)
/note= "No stop codon"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1471 ACCTCCTCCACCTCCACCACCGCC 1494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                692
                                                                                                                                                                                                                              Example 4; Fig 1A-C; 111pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              669 ACCTCCTCCACCTCCACCACGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ВР
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HPV-16 L1 codon optimised DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAD58571 standard; DNA; 1515
                                     Robinson RA, Thompson MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  . .1515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /partial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Human papillomavirus.
(NOVA-) NOVAVAX INC.
                                                                               WPI; 2003-679645/64.
                                                                                                     P-PSDB; ADA14290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO2003068163-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   04-DEC-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAD58571;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAD58571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠ
```

۵,

Sarup

```
The invention relates to human hepatocyte growth factor receptor kinase (hHGPR) and its nucleic acid sequence. The invention also relates to methods for identification of hHGPR inhibitors, hHGPR DNA is used to express the corresponding polypeptides and these are used to provide protein co-ordinate data useful in rational drug design of compounds that modulate kinase domain, potentially useful for treating diseases associated with signalling between hHGPR and hepatocyte growth factor, particularly tumours (since HGPR is a proto-oncogene). It can also be primers or probes. The present sequence is human HGPR mutant DNA fragment used to illustrate the method of the invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         New polynucleotide encoding human hepatocyte growth factor receptor, useful for designing modulators of the receptor, and potential antitumor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human, hepatocyte growth factor receptor kinase, hHGFR; proto-oncogene, protein co-ordinate data, drug design; hepatocyte growth factor; tumour; therapy; enzyme; mutant; gene; ds.
1. .897
/*tag= a
/product= "Human HGFR mutant protein fragment"
/product= "Human HGFR mutant protein fragment"
/prote= "CDS does not include stop codon"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Murray BW, Parge H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 897 BP; 257 A; 193 C; 207 G; 240 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1.2%; Score 23; DB 7; Length 897;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%; Preq. ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mroczkowski B, Hickey M, Mctigue MA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human HGFR H1094R mutant DNA fragment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1240 AAGGTTGCTGATTTTGGTCTTGC 1262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            508 AAGGITGCIGATITITGGICTIGC 530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim 4; Page 157; 204pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BP
                                                                                                                                                                                                                                                                                                                                                                   25-MAR-2002; 2002EP-00006616.
                                                                                                                                                                                                                                                                                                                                                                                                                                        23-MAR-2001; 2001US-0277968P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAD47600 standard; DNA; 897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     24-FEB-2003 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (AGOU-) AGOURON PHARM INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Local Similarity 100.
Matches 23; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 2003-001650/01.
P-PSDB; AAE30097.
                                                                                                                                                                                                                                       EP1243596-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAD47600;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Zhu J;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 15
AAD47600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo
      CDS
      ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      THE EN CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST CONTRACTOR OF THE FIRST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The present invention relates to chimeric virus-like particle comprising a recombinant viral capsid protein that encapsulates a recombinant viral protein that encapsulates a recombinant viral protein during self assembly into a chimeric virus-like particle and exhibiting conformational antigenic epitopes capable of eliciting neutralising antibodies. The vaccine comprising the chimeric virus-like particles are useful for inducing immunity (humoral and/or cell-mediated immunity) against papillomavirus infection. The invention is also useful in gene therapy. The present sequence is HPV (human papillomavirus)-16 L1 codon optimised DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human; hepatocyte growth factor receptor kinase; hHGFR; proto-oncogene; protein co-ordinate data; drug design; hepatocyte growth factor; tumour; therapy; enzyme; mutant; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New chimeric virus-like particles comprising a recombinant viral capsid protein encapsulating a recombinant viral protein, useful for inducing humoral and/or cell-mediated immunity against papillomavirus infection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8; Length 1515;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 1515 BP; 297 A; 632 C; 308 G; 278 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1.2%; Score 24; DB 100.0%; Pred. No. 1; tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1471 ACCTCCTCCACCTCCACCACCGCC 1494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Human HGFR M1250T mutant DNA fragment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  669 ACCTCCTCCACCTCCACCACGCC 692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 10; Fig 1A-1C; 126pp; English
                                                                                                                                                                                                                         14-FEB-2002; 2002US-0356119F.
14-FEB-2002; 2002US-0356129F.
14-FEB-2002; 2002US-0356126F.
14-FEB-2002; 2002US-0356135F.
14-FEB-2002; 2002US-0356135F.
14-FEB-2002; 2002US-0356151F.
14-FEB-2002; 2002US-0356152F.
14-FEB-2002; 2002US-0356152F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ВЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14-FEB-2002; 2002US-0356156P.
14-FEB-2002; 2002US-0356157P.
14-FEB-2002; 2002US-0356161P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14-FEB-2002; 2002US-0356162P
                                                                                                    14-FEB-2003; 2003WO-US004473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2002US-0356161P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAD47597 standard; DNA; 897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             24; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Robinson RA, Cioce V;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 24; Conservat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 2003-689598/65.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (NOVA-) NOVAVAX INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             P-PSDB; AAE38615.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  24-FEB-2003
                                     21-AUG-2003
```

ö

Gaps

ö

0; Indels

/*tag= a /product= "Human HGFR mutant protein fragment"

Location/Qualifiers

Homo sapiens

AAD47597;

RESULT 14

셤

Synthetic.

Key

Location/Qualifiers

```
The invention relates to human hepatocyte growth factor receptor kinase (hHGFR) and its nucleic acid sequence. The invention also relates to extended for identification of hHGFR inhibitors. hHGFR DNA is used to express the corresponding polypeptides and these are used to provide protein co-ordinate data useful in rational drug design of compounds that modulate kinase domain, potentially useful for treating diseases associated with signalling between hHGFR and hepatocyte growth factor, particularly tumours (since HGFR is a proto-oncogene). It can also be primers or probes. The present sequences and its fragments as primers or probes. The present sequence is human HGFR mutant DNA fragment used to illustrate the method of the invention
                                                                                                                                                                                                                                                                                                                                                                                                         New polynucleotide encoding human hepatocyte growth factor receptor, useful for designing modulators of the receptor, and potential antitumor
                                                                                                                                                                                                                                                                                         Mroczkowski B, Hickey M, Mctigue MA, Murray BW, Parge H, Sarup J;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 897 BP; 257 A; 191 C; 209 G; 240 T; 0 U; 0 Other;
/transl_except= (pos:424. .426, aa:Ala)
/transl_except= (pos:667. .669, aa:Leu)
/note= "CDS does not include stop codon"
/partial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Claim 6; Page 160-161; 204pp; English.
                                                                                                                                                                         25-MAR-2002; 2002EP-0006616.
                                                                                                                                                                                                               23-MAR-2001; 2001US-0277968P.
                                                                                                                                                                                                                                                     (AGOU-) AGOURON PHARM INC
                                                                                                                                                                                                                                                                                                                                                 WPI; 2003-001650/01.
P-PSDB; AAE30100.
                                                                                                 EP1243596-A2
                                                                                                                                     25-SEP-2002.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   agents.
                                                                                                                                                                                                                                                                                                             Zhu J;
```

ö

Gaps ö

Query Match
1.2%; Score 23; DB 7; Length 897;
Best Local Similarity 100.0%; Pred. No. 3.1;
Matches 23; Conservative 0; Mismatches 0; Indels

8 g Search completed: May 12, 2004, 17:27:15 Job time : 750 secs

nucleic

ð

Run on:

```
AV539333 AV539333
AV543493
AV543493
BV543493
BV543493
BV543493
BV566106 1170e12.
BW0061076 KSO1026B1
AV551753 AV551753
CC968148 BDIEB10TF
BH92830 04182404TF
BH92830 04182404TF
CC968148 BV55991
BH92830 0418260
BP175991 BP175991
BH92830 AV793188
AV547061 AV547061
AV619694 AV819694
AV797812 AV89812
AV797812 AV799812
AV819694 AV819129
AV819694 AV819129
AV819694 AV819129
AV819694 AV819129
AV819694 AV819129
AV819694 AV819129
AV819694 AV819804
AV797810 AV795881
AV793806 AV795891
AV793806 AV795801
AV793806 AV795801
AV793806 AV795801
AV819129 AV819129
AV818962 AV818662
BF176907 EM1 AF BIO CF015663 QBLB BII XCCCFL509
BC17458 EM1 AF BIO CF01563 QBLB BII XCCCFL509
BC17458 EM1 AF BIO CF01563 QBLB BII XCCCFL509
BC17458 EM1 AF BIO CF01563 QBLB BII XCCCCFL509
BC1745414 SCCCCFL509
CA095337 SCCCCL500
CA148443 SCCFKEZ100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CD819231 723 bp mRNA linear EST 10-JUL-2003
RFO2.114104F010529 RFO2 Brassica napus cDNA clone RFO2114104, mRNA
sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota, Viridiplantae, Streptophyta; Embryophyta; Tracheophyta; Sparmatophyta; Viridiplantae, Streptophyta; Eukaryota; Viridiplantae, Sparmatophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids; eurosids II; Brassicales; Brassicaceae; Brassica.

I (bases I to 723)
Genoplante.
Genoplante, a major partnership french program in plant genomics Unpublished (2003)
Contact: Genoplante
Genoplante
CD811912 BN10.019G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      93, rue Henri Rochefort 91025 EVRY CEDEX France
Tel: 33 1 69 47 54 00
Tel: 33 1 69 47 54 10
This sequence has been generated in the framework of the french plant genomics programme 'Genoplante' (http://www.genoplante.com and http://genoplante-info.infoblogen.fr).
1. 723
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ALIGNMENTS
                                                  BZ066106

BM061076

AV51073

CC968148

BH577077

BH928300

BP175991

BH434903

AL369682

CD004164
                                                                                                                                                                                                                                                                                                        BU820923
BG817458
BF176907
                                                                                                                                                                                                                                                                                                                                       CF015663
CF232052
BQ134241
CA248316
BQ506869
BU499754
                                                                                                                                                                                                                                                                                                                                                                                                               CA095337
CA148443
                                                                                                                                                                              AV547061
AV534188
AV534188
AV797870
AV800600
AV800600
AV795981
AV795981
AV793009
AV733009
AV819129
AV538962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CD839231.1 GI:32521171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Brassica napus (rape)
                                                                                                                                                                                                                                                                                                                              10
                                                                                                                                                                              CD839231
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 1
                                                    CD839231 RFO2.1141
BH442220 BOGLN68TR
BZ455058 BONKA33TF
CD811645 BN10.001E
                                                                                  (without alignments)
12772.735 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                      1944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Description
                                                                                                                                     1 atgtcctcggcgccgtctcc.....atagtggaccttctctttaa
                                                                        May 12, 2004, 16:51:16; Search time 4545 Seconds
                                                                                                                                                                                                                                 55026578
            GenCore version 5.1.6
(c) 1993 - 2004 Compugen Ltd.
                                                                                                                                                                                        27513289 seqs, 14931090276 residues
                                                                                                                                                                                                                                Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SUMMARIES
                                                   nucleic search, using sw model
                                                                                                                                                                                                                                                                                      summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CD839231
BH442220
BZ455058
CD811645
                                                                                                                                                         OLIGO NUC
Gapop 60.0 , Gapext 60.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                       em_eston:
em_eston:
em_eston:
em_htc:
gb_esto:
gb_htc:
gb_htc:
gb_eston:
em_eston:
em_eston:
em_eston:
em_gss_hum:
em_gss_hum:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       vrt:*'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               em gas pro: *
em gas rod: *
em gas phg: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             em_gss_vrl:*
gb_gssl:*
gb_gss2:*
                                                                                                                                                                                                                                                                                    Post-processing: Listing first 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mus:*
                                                                                                                                                                                                                                                     seq length: 0
seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             em_gss_pln:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mam: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14
28
14
                                                                                                                                                                                                                                                                                                                             em_esthum: *
em_estin: *
em_estmu: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                  US-10-086-464-1
                                                                                                                                                                                                                                                                                                                    em estba:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      em_gss_v
em_gss_f
em_gss_m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   723
453
753
314
                     Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       em gas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query
Match 1
                                                                                                                                                                                                                                                                                                           EST: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  22.1
14.0
9.6
3.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                            Perfect score:
                                                                                                                                                        Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   429
273
187
65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score
```

Word size :

Searched:

Sequence:

Minimum DB Maximum DB

Jatabase :

Result Š.

ద

8

g

ò

g ò a ઠે ద ò 셤 ò g ò 셤 ò 유

ò

```
Brassica oleracea
                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 3
BZ455058
                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                     유
                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                     ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                            1473
                                                                                                                                                                                                                                                                                                                                                                      1593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1834 GACTATGGACTGTACCCGTCTGGTTCAAGCGGGGGCCAAACCACACGCGAAATGGAG 1893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BH442220 453 bp DNA linear GSS 12-DEC-2001
BOGLN68TR BOGL Brassica oleracea genomic clone BOGLN68, genomic
                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                            GTATCACTGTCAGATCTTAACGAAGGGATGAGACCAGGTCAAAGCAATGTATACAGCTCA 1713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TACGGAGGAAGCACCGATTATGACTCGAGCCAGTACAATGAAGACATGAAGAAGTTTAGG 1773
                                                                                                                                                                                                                                                                                                                                                                                                         250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Brassica oleracea
Brassica oleracea
Sukaryota, Viridiplantae, Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
rosida; eurosida II; Brassicales; Brassicaceae; Brassica.
1 (bases 1 to 453)
Town, C.D., Van Aken, S., Utterback, T., Koo, H. and Fraser, C.M.
Whole genome shotgun sequencing of Brassica oleracea
                                                                                                                                                                                                                                                                                                                      131 CCATTGCTTAACCGAGCATCTGAGCAAGAGACTTTGAGGGTTTAGCTGATGCAAAGATG 190
                                                                                                                                                                                                                                                               cerceaccerreareceaacaarererareraareacaecaecrraerreacreeceaecae 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  371 TACGGAGGAAGCACCGATTATGACTCGAGCCAGTACAATGAAGACATGAAGAAGTTTAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAAATGGCTCTTGGAACTCAAGAGTACAACGCCACGGGTGAGTACAGTAATCCGACCACGC
                                                                                                                                                                                                                              1414 CGTCGACCCGTTGATGCCAACAATGTCTATGTAGATGACAGCTTAGTTGACTGGGCACGA
                                                                                                                                                                                                                                                                                                  CCATTGCTTAACCGAGCATCTGAGCAAGGAGACTTTGAGGGTTTTAGCTGATGCAAAGATG
                                                                                                                                                                                                                                                                                                                                                                      AATAATGGGTATGACAGAGAGGAGATGGCTCGCATGGTTGCTTGTGCTGCGGCTTGTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                            1774 AAAATGGCACTTGGAACTCAAGAGTACAACGCCACGGGTGAGTACAGTAATCCGACCAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                491 GACTATGGACTGTACCCGTCTGGTTCAAGCAGCGAGGGCCAAACCACACGAAATGGAG
                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGGGGAAGATTAAGAGAACCGGTCAGGGTTATAGTGGACCTTCTCTTTAA 1944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATGGGGAAGATTAAGAGAACCGGTCAGGGTTATAGTGGACCTTCTCTTTAA 601
                                                                                                                                                                                             ö
                                                                                                                                                        Query Match 22.1%; Score 429; DB 14; Length 723; Best Local Similarity 99.6%; Pred. No. 2.7e-183; Matches 529; Conservative 0; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9712 Medical Center Drive, Rockville, MD 20850, USA.
Tel: 301-838-3523
Fax: 301-838-0208
            /mol_type="mRNA"
/cultivar="samourai (restored line)"
/db_xref="taxon:3708"
/clone="RF02114104"
/tissue type="anthers"
/clone_lib="RF02"
organism≃"Brassica napus'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BH442220.1 GI:17627934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Other_GSSs: BOGLN68TF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Contact: Chris Town
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Brassica oleracea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                survey sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BH442220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TIGE
9712
                                                                                                                                                                                                                                                                                                  1474
                                                                                                                                                                                                                                                                                                                                                                                                                                            1594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1894
                                                                                                                                                                                                                                                               7
                                                                                                                                                                                                                                                                                                                                                                        1534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BH442220
                                                                                                                       ORIGIN
```

```
753 bp DNA linear GSS 13-DEC-2002
BONKA33TF BO 1.6_2_KB_tot Brassica oleracea genomic clone BONKA33,
genomic survey sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1807 ACGGGTGAGTACAGTAATCCGACCAGTGACTATGGACTGTACCCGTCTGGTTCAAGCAGC 1866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1747 TACAATGAAGACATGAAGAAGTTTAGGAAAATGGCACTTGGAACTCAAGAGTACAAGGCC 1806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Brassica oleracea
Brassica oleracea
Bruszyota, Viridiplantae, Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Wagnoliophyta; eudicotyledons; core eudicots;
rosids; eurosids II; Brassicales; Brassicaceae; Brassica.
I (bases I to 73)
Town, C.D., Van Aken, S., Utterback, T., Koo, H. and Fraser, C.M.
Whole genome shotgun sequencing of Brassica oleracea
Other GSSs: BONKA33TR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              229 CCAGGTCAAAGCAATGTATACAGCTCATACGGAGGAAGCACCGATTATGACTCGAGCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            169 CAGATTGTGCGTGCGTTAGAAGGAAATGTATCACTGTCAGATCTTAACGAAGGGATGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1687 CCAGGICAAAGCAATGIAIACAGCICAIACGGAGGAAGCACCGAITAIGACICGAGCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      289 TACAATGAAGACATGAAGAAGTTTAGGAAAATGGCACTTGGAACTCAAGAGTACAAGACGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      349 ACGGGTGAGTACAGTAATCCGACCAGTGACTATGGACTGTACCGGTCTGGTTCAAGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1627 CAGATTGTGCGTGCGTTAGAAGGAAATGTATCACTGTCAGATCTTAACGAAGGGATGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                         sheared
linkers"
                                                                                                                                                                                                                                                                                                                                                                                                                                                              .;
0
                                                                                                                          1. 453
| Crganism="Brassica oleracea"
| /organism="Brassica oleracea"
| /organism="Penomic DNA"
| /organism="Topica oleracea"
| /organism="Topica oleracea"
| /organism="BOGIN68"
| /olone ll="BOGIN68"
| /olone ll="BOGI"
| /ooce="Vector: pHOSI; Site 1: BstXI; 2-3 kb shegenomic DNA inserted into pHOSI using BstXI lir
                                                                                                                                                                                                                                                                                                                                                                                                               28; Length 453;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Email: cdtown@tigr.org
DNA is from a doubled haploid provided by Tom Osborn.
Stag primer: TF
Slass: sheared ends.
Email: cdtcwn@tigr.org
DNA is from a doubled haploid provided by Tom Osborn.
Seg primer: TR
Class: sheared ends.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20850,
                                                                                                                                                                                                                                                                                                                                                                                                            14.0%; Score 273; DB 28; L
100.0%; Pred. No. 1.6e-112;
iive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1867 GAGGGCCAAACCACACGCGAAATGGAGATGGGG 1899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGGGCCAAACCACACGCGAAATGGAGATGGGG 441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1. 753
/organism="Brassica oleracea"
/mol type="genomic DNA"
/strain="TO1000DH3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIGR
9712 Medical Center Drive, Rockville,
Tel: 301-838-3523
Fax: 301-838-0208
                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BZ455058.1 GI:26731783
                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local Similarity 100.0
Matches 273; Conservative
```

셤

ઠ a ð

셤 ò

```
Bukryota, Viridibantae, Streptophyta, Embryophyta, Tracheophyta, Bukryota, Viridibantae, Streptophyta, Embryophyta, Tracheophyta, Spermatophyta, Magnoliophyta, eudicotyledons, core eudicots, rosids, eurosids II, Brassicales, Brassicaceae, Arabidopsis.

1 (bases I to 561)
Asamizu,E., Nakamura,Y., Sato,S. and Tabata,S.
A large scale analysis of cDNA in Arabidopsis thaliana: Generation of 12,028 non-redundant expressed sequence tags from normalized and size-selected cDNA libraries
DNA Res. 7 (3), 175-180 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AV539333 Arabidopsis thallana roots Columbia Arabidopsis thaliana conts Columbia Arabidopsis thaliana conts RZ130c07F 3', mRNA sequence.

AV539333.1 GI:8701090
                                                                                                                                 CD811912 314 bp mRNA linear EST 10-JUL-2003
BN10.019G03F020121 BN10 Brassica napus cDNA clone BN10019G03, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1825 CCGACCAGTGACTATGGACTGTACCCGTCTGGTTCAAGCAGCGAGGGCCCAAACCACACGC 1884
                                                                                                                                                                                                                                                                                Brassica napus
Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
rosids; eurosids II; Brassicales; Brassicaceae; Brassica.
                                                                                                                                                                                                                                                                                                                                                                                                        Genoplante, a major partnership french program in plant genomics Unpublished (2003)
Contact: Genoplante
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This sequence has been generated in the framework of the french plant genomics programme 'Genoplante' (http://www.genoplante.com and http://genoplante-info.infobiogen.fr).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1885 GAAATGGAGATGGGGAAGATTAAGAGAACCGGTCAGGGTTATAGTGGACCTTCTC 1940
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 CCGACCAGTGACTATGGACTGTACCCGTCTGGTTCAAGCAGCCAGGGCCAAACCACGC
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 314;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 65; DB 14; Length 31
Pred. No. 3.8e-18;
0; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 93, rue Henri Rochefort 91025 EVRY CEDEX France
Tel: 33 1 69 47 54 00
Fax: 33 1 69 47 54 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Brassica napus"
/mol_type="mRNA"
/cultivar="Jet neuf"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Arabidopsis thaliana (thale cress)
Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /db_xref="taxon:3708"
/clone="BN10019G03"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /tissue_type="seed"
/clone_lib="BN10"
                                                                                                                                                                                                                   CD811912.1 GI:32493852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3.3%;
                                                                                                                                                                                                                                                                  Brassica napus (rape)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity 99.1
Matches 115; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Genoplante
                                                                                                                                                                            sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EST
                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                          ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                 LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AV539333/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                      RESULT 5
CD811912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                            1341
                                                                                                                                                                                                                                                                                                                                                                                                               CD811645 314 bp mRNA linear EST 10-JUL-2003
BN10.001E08F011207 BN10 Brassica napus CDNA clone BN10001E08, mRNA
Sequence.
CD811645
                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                             1342 GCAAGCGGAAAGCTCACGGAGAAGTCTGACGTTTTCTCATTTGGCGTTGTGCTTTTGGAG 1401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1825 CCGACCAGTGACTATGGACTGTACCCGTCTGGTTCAAGCAGCGAGGGCCAAACCACACGC 1884
                                                                                                                                                                                                                                                                                                                                                    71 GCAAGGGGAAAGCTCAGGAGAAGTCTGACGTTTTCTCATTTGGCGTTGTGCTTTTGGAG 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota, Tracheophyta, Embryophyta; Tracheophyta; Spermatophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids; eurosids II; Brassicales; Brassicaceae; Brassica. I (bases I to 314)
Genoplante. Genoplante, a major partnership french program in plant genomics Unpublished (2003)
                                                                                                                                                                                                                                                                                       70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 CCGACCAGTGACTATGGACTGTACCCGTCTGGTTCAAGCAGCGAGGGCCAAACCACACGC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           plant genomics programme 'Genoplante' (http://www.genoplante.com and http://genoplante-info.infobiogen.fr).
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    93, rue Henri Rochefort 91025 EVRY CEDEX France
Tel: 31 1 69 47 54 00
Fax: 31 1 69 47 54 10
This sequence has been generated in the framework of the french
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1885 GAAATGGAGATGGGGAAGATTAAGAGAACCGGTCAGGGTTATAGTGGACCTTCTCT 1940
                      /clone="BONKA33"
/clone lib="BO 1.6 2 KB tot"
/nore="Vector: pHOSI; Site 1: BstXI; 1.6-2 kb sheared
total DNA inserted into pHOSI using BstXI linkers"
                                                                                                                                                                                                                                            1282 AACACGCATGTATCAACACGTGTGATGGGAACCTTTGGGTACTTGGCTCCGGAATACGCT
                                                                                                                                                                                                                                                                  AACACGCATGTATCAACACGTGTGATGGGAACCTTTGGGTACTTGGCTCCGGAATACGCT
                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                   9.6%; Score 187; DB 28; Length 753; 100.0%; Pred. No. 2e-73; tive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 314;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3.3%; Score 65; DB 14;
ilarity 99.1%; Pred. No. 3.8e-18;
Conservative 0; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="Brassica napus"
/mol_type="mRNA"
cultivar="Jet neuf"
/db_xref="taxon:3708"
/clone="RNA"
/tissue_type="seed"
/clone_lib="BN10"
    xref="taxon:3712"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CD811645.1 GI:32493585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Brassica napus (rape)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Contact: Genoplante
Genoplante
                                                                                                                                                                            Best Local Similarity 100.
Matches 187; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1462 GACTGGG 1468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Brassica napus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   191 GACTGGG 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Similarity
Matches 115, Conserv
                                                                                                                                                                                                                                                                                    11
                                                                                                                                                                                                                                                                                                                                                                                                                    1402
                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 4
CD811645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORIGIN
```

ద

ઠે

ò

ö

9

GSS 12-DEC-2001

PUBMED COMMENT

FEATURES

```
BONBBEGTR BO 1.6_2 KB_tot Brassica oleracea genomic clone BONBB66, BZ456327
                                                                                                                                                                                                                                            Brassica oleracea
Brassica oleracea
Eukaryota, Viridiplantae, Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
rosids; eurosids II; Brassicales; Brassicaceae; Brassica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Brassica oleracea
Brusaryota, Viridiplantae, Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
rosids; eurosids II; Brassicales; Brassicaceae; Brassica.
                                                                                                           BH432371 754 bp DNA linear GSS 12-DEC-2
BOGVQ93TR BOGV Brassica oleracea genomic clone BOGVQ93, genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone="BGGVQ93"
/clone lib="BGGV"
/note="Vector: pHOS1; Site 1: BstXI; 2-3 kb sheared
genomic DNA inserted into PHOS1 using BstXI linkers"
                                                                                                                                                                                                                                                                                                                                                       1 (bases 1 to 754)
Town, C.D., Van Aken, S., Utterback, T., Koo, H. and Fraser, C.M. Whole genome shotgun sequencing of Brassica oleracea (Unpublished (2001)
Other GSSs: BOGVQ93TF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Fraser, C.M.
468 GCTGCGGCTTGTGTTCGCCATTCAGCTCGCCGCAGACCTCGCATGAGCCAGAT 416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TIGR
9712 Medical Center Drive, Rockville, MD 20850, USA.
Tel: 301-838-3523
Fax: 301-838-0208
DNA is from a doubled haploid provided by Tom Osborn.
Seq primer: TR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 (bases 1 to 342)
Town, C.D., Van Aken, S., Utterback, T., Koo, H. and Frai Whole genome shotgun sequencing of Brassica oleracea Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 754;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9712 Medical Center Drive, Rockville, MD 20850, USA.
Tel: 301-838-3523
Fax: 301-838-0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1762 AAGAAGTTTAGGAAAATGGCACTTGGAACTCAAGAGTACAAC 1803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    462 AAGAAGTTTAGGAAAATGGCACTTGGAACTCAAGAGTACAAC 503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 28; L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Brassica oleracea"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2.2%; Score 42; DB 100.0%; Pred. No. 1.3 iive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /mol_type="genomic DNA'
/strain="TO1000DH3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="taxon:3712"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BZ456327.1 GI:26734454
                                                                                                                                                                                              BH432371.1 GI:17618092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Class: sheared ends.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Contact: Chris Town
TIGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Contact: Chris Town
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Brassica oleracea
                                                                                                                                                           survey sequence.
BH432371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             42;
                                                                                                                                                                                                                           GSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                    RESULT 8
BH432371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 9
BZ456327
                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                       VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Asamizu, E., Nakamura, Y., Sato, S. and Tabata, S. Alarge scale analysis of CDNA in Arabidopsis thaliana: Generation of 12,028 non-redundant expressed sequence tags from normalized and size-selected CDNA libraries
DNA Res. 7 (3), 175-180 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Yana 1532-3, Kisarazu, Chiba 292-0812, Japan
Email: asamizu@kazusa.or.jp, URL:http://www.kazusa.or.jp/en/plant/.
Location/Qualifiers
                                             The First Laboratory for Plant Gene Research
Kazusa DNA Research Institute
Yana 1532-3, Kisazusau, Chiba 292-0812, Japan
Email: asamizu@kazusa.or.jp, URL:http://www.kazusa.or.jp/en/plant/.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        07-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Arabidopsis thaliana
Eukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Magnoliophyta, eudicotyledons, core eudicots,
rosids, eurosida II, Brassicales, Brassicaceae, Arabidopsis.
                                                                                                                                                                                                                                                /clone="R2130c07F"
/tiseue type="roots"
/clone_lib="Arabidopsis thaliana roots Columbia"
/note="Vector: pBluescriptII SK-; Site_1: EcoRI; Site_2: XhoI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AV543493 Sabidopsis thaliana roots Columbia Arabidopsis thaliana cons Columbia Arabidopsis thaliana cons Columbia Arabidopsis thaliana AV543493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /db_xref="taxon:3702"
/clone="R2201607F"
/tissue type="roots"
/clone lib="Arabidopsis thaliana roots Columbia"
/note="Vector: pBluescriptII SK-; Site_1: EcoRI; Site_2: XhoI:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1579 GCTGCGGCTTGTGTTCGCCATTCAGCTCGCCGCAGACCTCGCATGAGCCAGAT 1631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            543 gergedecrigitaticaccarreaecredecaeaeceredeargaeceaear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2.7%; Score 53; DB 9; Length 584;
100.0%; Pred. No. 1.3e-12;
live 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                              Length 561;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The First Laboratory for Plant Gene Research
Kazusa DNA Research Institute
                                                                                                                                                                                                                                                                                                                                                                                                                              DB 9; Le
1.2e-12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Arabidopsis thaliana"
/mol_type="mRNA"
/strain="Columbia"
                                                                                                                                                                                  /organism="Arabidopsis thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                            2.7%; Score 53; DB
.larity 100.0%; Pred. No. 1.2
Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Arabidopsis thaliana (thale cress)
                                                                                                                                                                                                     /mol_type="mRNA"
/strain="Columbia"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Contact: Erika Asamizu
                                Contact: Erika Asamizu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AV543493.1 GI:8714907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          53; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1579 GCTGCGGCTTGTGT1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 53; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
nes 53; Conserv
      10907847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10907847
                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bource
```

AV543493/c DEFINITION

ACCESSION

MEDLINE PUBMED COMMENT

FEATURES

ORIGIN

õ

JOURNAL

REFERENCE AUTHORS

TITLE

Best Loc Matches

ò 유

ORIGIN

ö

Gaps

.. 0

EST 11-SEP-2002

source

ORIGIN

FEATURES

```
Eukaryota, Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; asterids; lamids; Solanales; Solanaceae; Capsicum.

1 (bases 1 to 565)

2 Lee,S., Kim,S.-Y., Chung,Y.-H., Shin,H.-J., Goh,S.-H., Pai,H.-S., Hur,C.-G. and Choi,D.

3 Lee,S., Kim,Ser.-Y., Chung,Y.-H., Shin,H.-J., Goh,S.-H., Pai,H.-S., Hur,C.-G. and Choi,D.

3 Generation of Expressed Sequence Tags from Hot Pepper (Capsicum annum L.) and Sequence Analysis in Relation to Hypersensitive Response Against Pathogen

4 Unpublished (2001)

4 Contact: Doil Choi

5 Genome Research Institute of Bioscience and Biotechnology

7 Fo. Box 115, Vusong, Taejeon, 305-600, Republic of Korea

7 Tel: 82-42-860-4300

Fax: 82-42-860-4300

Fax: 82-42-860-4300

Fax: Baill, Kribb, re.kr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AV551753 Arabidopsis thaliana roots Columbia Arabidopsis thaliana CDNA clone RZ130c07R 5', mRNA sequence.
AV551753
AV551753
AV551753.1 GI:8723166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Arabidopsis thaliana
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Sperimatophyta; Magnoliophyta; eudicotyledons; core eudicots;
rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.

1 (bases 1 to 573)
Asamizu,E., Nakamura,Y., Sato,S. and Tabata,S.
Alarge scale analysis of CDNA in Arabidopsis thaliana: Generation of 12,028 non-redundant expressed sequence tags from normalized and size-selected cDNA libraries
DNA Res. 7 (3), 175-180 (2000)
20353093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Capsicum annuum"
/mol type="mRNA"
/cultivar="Bukang"
/db xref="taxon:4072"
/tissue type="leaf inoculated with Xanthomonas campestris
pv. glycines"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1.5%; Score 29; DB 12; Length 505;.
100.0%; Pred. No. 0.095;
tive 0; Mismatches 0; Indels C
                                                                                                                                           BM061076 505 bp mRNA linear KS01026B11 KS01 Capsicum annuum cDNA, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /dev_stage="8 weeks after germination"
/clone_lib="KS01"
/note="Vector: pBluescript SK(-)"
          729 CCATTCAGCTCGCCGCAGACCTCGCATGAG 700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1244 TIGCTGATTTTGGTCTTGCTAAGATTGCT 1272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Arabidopsis thaliana (thale cress)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              High quality sequence stop: 505.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TIGCTGATTTTGGTCTTGCTAAGATTGCT
                                                                                                                                                                                               BM061076
BM061076.1 GI:22781194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                           Capsicum annuum
                                                                                                                                                                                                                                                                                                      Capsicum annuum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity
Matches 29; Conserv
                                                                                                                                                                                                                                                     EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                DEFINITION
                                                                                                                                                                                         ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 12
AVS51753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VERSION
KEYWORDS
SOURCE
                                                                                       RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                               BM061076
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
          엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BZ066106 744 bp DNA linear GSS 10-OCT-2002 lj170e12.g1 B.oleracea002 Brassica oleracea genomic, genomic survey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Brassica oleracea

Eukaryota, Viridiplantae, Streptophyta; Embryophyta; Tracheophyta;

Eukaryota, Viridiplantae, Streptophyta; Embryophyta; Tracheophyta;

Epermatophyta; Magnoliophyta; eudicotyledons; core eudicots;

rosids; eurosids II; Brassicales; Brassicaceae; Brassica.

1 (bases 1 to 744)

Delehaunty, K., Fewell, G., Fulton, L., McCombie, W.R., Miner, T.,

Mash, W., Rabinowicz, P.D. and Wilson, R.K.

Whole genome shotgun reads from Brassica oleracea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /moi_type="genomic DNA"
/db xrefe="taxon:312"
/clone lib="b:oleracea002"
/clone lib="boleracea002"
/note="Vector: pOTw13; Whole genome shotgun library from flowering buds. DNA was purified from a crude nuclear prep using Brassica oleracea TO1000DH3 buds provided by Thosmas Osborn at the University of Wisconsin. Genomic DNA was provided by Pablo Rabinowicz (CSHL) and the Sequencing Center."
                                                                                                                                  1. .342.
| organism="Brassica oleracea"
| fmolloganism="Brassica oleracea"
| molloganism="genomic DNA"
| fstråin="TO1000DH3"
| db_xref="taxon:3712"
| folone="BONBB66"
| folone="BONBB66"
| folone="Vector: pHoS1; Site 1: BstXI; 1.6-2 kb sheared total DNA inserted into pHoS1 using BstXI linkers"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
Email: cdtown@tigr.org
DNA is from a doubled haploid provided by Tom Osborn.
Seq primer: TR
Class: sheared ends.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
1.5%; Score 30; DB 28; Length 744;
Best Local Similarity 100.0%; Pred. No. 0.037;
Matches 30; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 342;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Genome Sequencing Center
Washington University School of Medicine
Baall: submissions@watson.wustl.edu
Plate: 11,70 row: e column: 12
Seq primer: -28RPpOr reverse
                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 1.6%; Score 32; DB 28; Best Local Similarity 100.0%; Pred. No. 0.0038; Matches 32; Conservative 0; Mismatches 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       182 ccarcrecarcaacrecacaaccaca 213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            organism="Brassica oleracea"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      37 CCATCTCCACCATCAACTCCACACCACCAC 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1596 CCATTCAGCTCGCCGCAGACCTCGCATGAG 1625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Class: shotgun
High quality sequence start: 17
High quality sequence stop: 551.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Contact: Richard K. Wilson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BZ066106
BZ066106.1 GI:23679353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Brassica oleracea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sequence.
```

VERSION KEYWORDS SOURCE ORGANISM

ACCESSION

TITLE JOURNAL COMMENT

FEATURES

ORIGIN

ઠે

REFERENCE AUTHORS

BZ066106/c DEFINITION

RESULT 10

a ઠે

ö

Gaps

ö

```
TIGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                     VERSION
KEYWORDS
SOURCE
ORGANISM
                                                    RESULT 14
BH577077/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 15
BU043317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BOIEBIOTF BO_1.4_1.6_KB_nuc Brassica oleracea genomic clone
BOIEBIO, genomic survey sequence.
CC968148.1 GI:33822075
GSS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
               The First Laboratory for Plant Gene Research
Kazusa DNA Research Institute
Yana 1532-3, Kisarazu, Chiba 292-0812, Japan
Email: asamizu@kazusa.or.jp, URL:http://www.kazusa.or.jp/en/plant/.
Location/Qualifiers
1. .573
/organism="Arabidopsis thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Brassica oleracea

Bukaryota, Viridiplantae, Streptophyta; Embryophyta; Tracheophyta;

Bukaryota, Viridiplantae, Streptophyta; Embryophyta; Tracheophyta;

Bobernatophyta; Magnoliophyta; eudicotyledons; core eudicots;

rosida; eurosida II; Brassicales; Brassicacea; Brassica.

1 (Dasses 1 to 677)

Town, C.D., Van Aken, S., Utterback, T., Koo, H. and Fraser, C.M.

Whole genome shotgun sequencing of Brassica oleracea

Unpublished (2001)

Other GSSs: BOISB10TR
                                                                                                                                                                                                                      /mol type="mixtorner" | for the first containing | /mol type="mixtorner" | for the first containing | /mol type="vector: planescript! | for the first containing | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: planescript! | /mote="vector: plane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /clone lib="BO 1.4 1.6 KB nuc"
/note="Vector: pHOS2; Site_1: BstXI; 1.4-1.6 kb sheared
nuclear DNA inserted into pHOS2 using BstXI linkers"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Email: cdtown@tigr.org
DNA is from a doubled haploid provided by Tom Osborn.
Seq primer: IF
Class: sheared ends.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1.5%; Score 29; DB 29; Length 607;
100.0%; Pred. No. 0.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1.5%; Score 29; DB 9; Length 573;
100.0%; Pred. No. 0.099;
tive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.099;
0.099;
0. Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9712 Medical Center Drive, Rockville, MD 20850,
Tel: 301-838-3523
Fax: 301-838-0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Brassica oleracea"
/mol_type="genomic DNA"
/strain="TO1000DH3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%; Pred. ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       871 AAAGGIGIGITIGCCTAGIGGGAAAGAAGI 899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 471 TTGCCTAGTGGGAAAGAAGTTGCTGTGAA 499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               880 TIGCCTAGIGGAAAGAAGIIGCIGIGAA 908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /db xref="taxon:3712"
/clone="BOIEB10"
Contact: Erika Asamizu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity 100.
Matches 29; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Brassica oleracea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Matches 29; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CC968148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                 FEATURES
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EST 26-AUG-2002
BH577077 GSS 14-DEC-2001
BOHCX77TR BOHC Brassica oleracea genomic clone BOHCX77, genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Bukaryota; Viridiplantae; Streptophyta; Eudicotyledons; core eudicots; rosids; eurosids I; Rosales; Rosaceae; Amygdaloideae; Prunus. I (baese I to 651)
Callahan,A., Palmer,M., Main,D., Wing,R. and Abbott,A.
Deach Model Genome for Rosaceae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           651 bp mRNA linear EST 26-AUG-200;
PP_LEA0015K13f Peach developing fruit mesocarp Prunus persica CDNA
EU043317
                                                                                                                                                                                                 Brassica oleracea
Brataryora, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Magnoliophyta, eudicotyledons, core eudicots,
rosids, eurosids II, Brassicales, Brassicaceae, Brassica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /db_xref="taxon:3712"
/clone="BOHCX77"
/clone lib="BOHC"
/note="Vector: pHOS1; Site 1: BstXI; 2-3 kb sheared
genomic DNA inserted into pHOS1 using BstXI linkers"
                                                                                                                                                                                                                                                                                          1 (bases 1 to 620)
Town, C.D., Van Aken, S., Utterback, T., Koo, H. and Fraser, C.M. Whole genome shocgun sequencing of Brassica oleracea Unpublished (2001)
Other GSSS: BOHCYTTF
Contact: Chris Town
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      122 Long Hall, Clemson University, Clemson, SC 29634, USA Tel: 864 656 3060
Fax: 864 656 6879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9712 Medical Center Drive, Rockville, MD 20850, USA. Tel: 301-838-3523
Fax: 301-838-0208
Email: cdtown@tigr.org
DNA is from a doubled haploid provided by Tom Osborn. Seg primer: TR
Class: sheared ends.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 1.5%; Score 29; DB 28; Length 620; Best Local Similarity 100.0%; Pred. No. 0.1; Matches 29; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    organism="Brassica oleracea"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   567 AAAGGTGTGTTGCCTAGTGGGAAAGAAGT 539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       871 AAAGGTGTGTTGCCTAGTGGGAAGAAGT 899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Contact: Abbott, A. Dept of Genetics and Biochemistry Clemson University
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /mol_type="genomic DNA"
/strain="TO1000DH3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BU043317.1 GI:22483394
                                                                                                               BH577077.1 GI:17829358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Prunus persica (peach)
Prunus persica
                                                                                                                                                                        Brassica oleracea
                                                   survey sequence.
BH577077
```

```
Email: aalbert@clemson.edu

Total High Quality bases = 578
Seq primer: TAATACCACTCACTATAGGG
High quality sequence stop: 651.

Location/Qualifiers
1. 651
/organism="Prunus persica"
/mol_type="mRNA"
/cultivar="Locing"
/db_xref="taxon:3760"
/db_xref="taxon:3760"
/db_bost="E_coing"
/lisue type="Mesocarp"
/tisue type="Mesocarp"
/lone lib="Peach developing fruit mesocarp"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sequence analysis go to http://www.genome.clemson.edu/projects/peach. To order this clone go to http://www.genome.clemson.edu/orders"
                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                         FEATURES
```

Gaps . 0 Query Match 1.5%; Score 29; DB 13; Length 651; Best Local Similarity 100.0%; Pred. No. 0.1; Matches 29; Conservative 0; Mismatches 0; Indels 1555 GAGATGGCTCGCATGGTTGCTTGTGCTGC 1583 270 GAGATGGCTCGCATGCTTGCTTGTGCTGC 298 ઠે

ORIGIN

; 0

Search completed: May 12, 2004, 20:46:18 Job time: 4562 secs

요

this page Blank (uspto)

```
1240 AAGGTTGCTGATTTTGGTCTTGC 1262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;
US-08-306-691B-22
                                                                                                                                                                                                                                                        US-08-306-691B-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Appl
Appl
Appl
Appl
Appl
Appl
                                                                           (without alignments)
6421.575 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 1381
                                                                                                                                1 atgtecteggeegtetee......atagtggaeettetettaa 1944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 22,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 55,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 1
Sequence 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 1
Sequence 4
Sequence 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                              May 12, 2004, 16:54:59; Search time 168 Seconds
                                                                                                                                                                                                                                                                                                                       /cgn2_6/ptodata/2/ina/5A_COMB.seq:*
/cgn2_6/ptodata/2/ina/5B_COMB.seq:*
/cgn2_6/ptodata/2/ina/6A_COMB.seq:*
/cgn2_6/ptodata/2/ina/6B_COMB.seq:*
/cgn2_6/ptodata/2/ina/PCTUS_COMB.seq:*
/cgn2_6/ptodata/2/ina/PCTUS_COMB.seq:*
GenCore version 5.1.6
(c) 1993 - 2004 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3-09-635-872A-20
3-09-636-077A-20
3-09-636-060C-20
                                                                                                                                                                                                                                Total number of hits satisfying chosen parameters
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-376-330-1
US-09-635-872A-4
US-09-636-077A-4
                                                                                                                                                                                      682709 segs, 277475446 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                 SUMMARIES
                                                                                                                                                                                                                                                                                        Post-processing: Listing first 45 summaries
                                         - nucleic search, using sw model
                                                                                                                                                     OLIGO_NUC
Gapop_60.0 , Gapext 60.0
                                                                                                                                                                                                                                                                                                               Issued Patents NA:*
                                                                                                                                                                                                                                                      seq length: 0
seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB
                                                                                                           US-10-086-464-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                            %
Query
Match Length D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    358
2421
2487
3621
3621
3621
3621
3783
3783
3783
3783
3783
5053
5053
         Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Perfect score:
                                                                                                                                                      Scoring table:
                                                                                                                                                                                                                                                      Minimum DB Maximum DB
                                          OM nucleic
                                                                                                                                                                                                                                                                                                               Database :
                                                                                                                                                                                                             Word size
                                                                                                                                   Sequence:
                                                                                                                                                                                        Searched:
                                                               Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Result
```

```
ö
Sequence 4, Appli
Sequence 2260, Ap
Sequence 6190, Ap
Sequence 4009, Ap
Sequence 5000, Ap
Sequence 5000, Ap
Sequence 9270, Ap
Sequence 373, Appli
Sequence 3, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 22, Application US/08306691B

Sequence 22, Application US/08306691B

Patent No. 5734039

GENERAL INFORMATION:

APPLICANT: Calabretta, Bruno

APPLICANT: Skorski, Tomasz

TITLE OF INVENTION: ANTISENSE

TITLE OF INVENTION: OLIGONUCLEOTIDES TARGETING COOPERATING ONCOGENES

WUMBER OF SEQUENCES: 55

CORRESPONDENCE ADDRESS:

STREET: Two Penn Center, Suite 1800'

CITY: Philadelphia

STATE: Pennsylvania

COUNTRY: U.S.A.
                                                                                                                                                                                      Sequence 666, App
Sequence 921, App
Sequence 672, App
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                       Sequence 1
Sequence 1
                                                                                                                                                                                                                                                                                              Sequence Sequence Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 4626;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Indels
                 US-09-313-294A-2260
US-09-313-294A-4708
US-09-313-294A-4708
US-09-313-294A-4708
US-09-313-294A-4708
US-09-321-976-594
US-09-685B-3
US-09-977-594
US-09-971-823B-1
US-09-971-823B-1
US-09-971-823B-1
US-09-971-823B-1
US-09-971-823B-1
US-09-971-823B-1
US-09-971-823B-1
US-09-971-823B-1
US-09-971-823B-1
US-09-971-823B-1
US-09-971-823B-1
US-09-111-812A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 1.2%; Score 23; DB 1;
Best Local Similarity 100.0%; Pred. No. 0.27;
Matches 23; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
COMPUTER READABLE FORM:
MEDIUM TYPES: Diskette, 3.50 inch, 720 KD
COMPUTER: IBM PS/2
OPERATING SYSTEM: MS-DOS
SOFTWARE: Wordberfect 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/306,6918
FILING DATE: September 15, 1994
CLASSIFICATION DATA:
APPLICATION NUMBER: 15, 1994
FILING DATE:
APPLICATION NUMBER: 15, 1994
FILING DATE:
ATTORNEY AGENT INFORMATION:
NAME: MONACO, Daniel A.
RAGISTRAATION NUMBER: 30, 480
REGISTRAATION NUMBER: 30, 480
REGISTRAATION NUMBER: 30, 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                줲
                                                                                                                                                                                                                                                                                                                                                                                                  ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE/DOCKET NUMBER: 833
TELECOMOUNICATION INFORMATION:
TELEPHONE: (215) 568-8383
TELEPAX: (215) 568-5549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEX: NO. 5734039e
INFORMATION FOR SEQ ID NO: 22:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 4626 base pairs
                                                                                                                                                                                                                               684
1008
1008
1276
1276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nucleic acid
EDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: nucleic STRANDEDNESS:
```

```
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGIH:
                                                                                                                                                                                                                                                                                                              ઠ
                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         요
                                                                                                                                                    Sequence 27, Application PC/TUS9306251
GENERAL INFORMATION:
APPLICANT: Wickstrom, Eric and Rife, Jason P.
APPLICANT: Wickstrom, Eric and Rife, Jason P.
TITLE OF INVENTION: Trivalent Synthesis of Oligonucleotides Containing
TITLE OF INVENTION: Stereospecific Alkylphosphonates NUMBER OF SEQUENCES: 93
CORRESPONDENCE ADDRESS:
ADDRESSEE: SCULLY, SCOTT, MURPHY & PRESSER
STREET: 400 Garden City Plaza
CITY: Garden City Plaza
CITY: Garden City
STREET: NY
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 1.2%; Score 23; DB 5; Length 4626; Best Local Similarity 100.0%; Pred. No. 0.27; Matches 23; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/NS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
SUFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATE:
APPLICATION NUMBER: PCT/US93/06251
FILING DATE: 19930630
CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: DiGiglio, Frank S.
REGISTRATION NUMBER: 8586
TELEPHONE: 516-74-3436
TELEPHONE: 516-74-3436
TELEPHONE: 516-74-3436
TELEPHONE: 516-74-3436
TELEPHONE: 516-74-3436
TELEPHONE: S16-74-3436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-001-30-729-55

Sequence 55, Application US/09800729

Patent No. 6605592

GENERAL INFORMATION:

APPLICANT: Ni et al.

TILLE OF INVENTION: 12 Human secreted proteins

TILLE OF INVENTION: 12 Human secreted proteins

CURRENT APPLICATION NUMBER: US/09/800,729

CURRENT FILING DATE: 2000-09-22

PRIOR PEPLICATION NUMBER: PCT/US00/26013

PRIOR FILING DATE: 2000-09-24

NUMBER OF SEQ ID NOS: 217

SEQTWARE: Patentin Ver. 2.0

SEQ ID NO 55

LENGTH: 609
3903 AAGGTTGCTGAITTTTGGTCTTGC 3925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1240 AAGGTTGCTGATTTTGGTCTTGC 1262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3903 AAGGTTGCTGATTTTGGTCTTGC 3925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; TOPOLOGY: linear
; MOLECULE TYPE: DNA (genomic)
PCT-US93-06251-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                           PCT-US93-06251-27
                                                                                                              RESULT 2
                             d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
```

```
Sequence 1381, Application US/09252991A

Sequence 1381, Application US/09252991A

Patent No. 6551795

GENERAL INFORMATION:
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS
TITLE OF INVENTION: NUCLEIC ACID AND THERAPEUTICS
TITLE OF INVENTION: ARRUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 107196.136
CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT APPLICATION NUMBER: US 60/074,788
PRIOR FILING DATE: 1998-02-18
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142

SEQ ID NO 1381
                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 1274, Application US/0925291A
Sequence 1274, Application US/0925291A
Sequence 1274, Application US/0925291A
Sequence 1274, Application US/0925291A
GENERAL INFORMATION:
APPLICANT: Marc J. Rubenfield et al.
APPLICANT: Marc J. Rubenfield et al.
TITLE OF INVENTION: MCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS;
TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
CURRENT APPLICATION NUMBER: US 60/074,788
PRIOR APPLICATION NUMBER: US 60/094,190
PRIOR PLING DATE: 1998-02-18
PRIOR PLING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 1274
LENGTH: 852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                               ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1.0%; Score 20; DB 4; Length 852;
100.0%; Pred. No. 7.4;
ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
1.0%; Score 20; DB 4; Length 909;
Best Local Similarity 100.0%; Pred. No. 7.4;
Matches 20; Conservative 0; Mismatches 0; Indels
                                                                                                                                                              Length 609;
                                                                                                                                                           Query Match 1.0%; Score 20; DB 4; Best Local Similarity 100.0%; Pred. No. 7.4; Matches 20; Conservative 0; Mismatches (
FEATURE:
NAMEKEY: SITE
LOCATION: (554)
COTHER INFORMATION: n equals a,t,g, or US-09-800-729-55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1467 GGCACGACCATTGCTTAACC 1486
                                                                                                                                                                                                                                                                                                      269 CAACCTCCTCCACCTCCACC 288
                                                                                                                                                                                                                                                                     667 CAACCTCCTCCACCTCCACC 686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          56 GGCACGACCATTGCTTAACC 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM: Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM: Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity
Matches 20; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 5
US-09-252-991A-1381/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-252-991A-1274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-252-991A-1381
                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 4
US-09-252-991A-1274
```

ö

Gaps

ö

ò 셤

```
APPLICANT: Prayaga Sudhirda K.
APPLICANT: Majumder, Kumud
APPLICANT: Majumder, Kumud
APPLICANT: Taillon, Bruce E.
APPLICANT: Spaderna, Steven K.
APPLICANT: Spaderna, Steven K.
APPLICANT: Spaderna, Steven K.
APPLICANT: MacDougall, John
TILLE OF INVENTION: NOVEL POLYPEPTIDES AND NUCLEIC ACIDS ENCODING SAME FILE REPERBORE: 15966-631
CURRENT PAPLICATION NUMBER: US/09/755,665
CURRENT PILING DATE: 2001-08-14
PRIOR APPLICATION NUMBER: US.S.N. 60/174,724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE TREATMENT AND DIAGNOSIS OF BREAST CANCER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 41100;
                                                                                                                                                                                                                                                                                                                       Length 5720;
                                                                                                                                                                                                                                                                                                                                                                    0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                     1.0%; Score 20; DB 4;
100.0%; Pred. No. 7.5;
tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1.0%; Score 20; DB 4;
100.0%; Pred. No. 7.5;
tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQUENCES: 292
CORRESPONDENCE ADDRESS:
ADDRESSEE: Seed IP Law Group
STREET: 701 Fifth Avenue, Suite 6300
CURRENT APPLICATION NUMBER: US/09/800,729
CURRENT FILING DATE: 2001-03-08
PRIOR APPLICATION NUMBER: PCT/US00/26013
PRIOR FILING DATE: 2000-09-22
PRIOR FILING DATE: 1999-09-24
NUMBER OF SEQ ID NOS: 217
SEQ ID NO 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 10
US-08-991-789A-168
; Sequence 168, Application US/08991789A
; Patent No. 6225054
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  22048 TGGGAGTGGTCAGGGAGAGA 22029
                                                                                                                                                                                                                                                                                                                                                                                                                                          5431 CAACCTCCTCCACC 5450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-755-665-46/c
; Sequence 46, Application US/09755665
; Patent No. 6600019
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                667 CAACCTCCTCCACC 686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      921 TGGGAGTGGTCAGGGAGAGA 940
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Frudakis, Tony N. Smith, John M. Reed, Steven G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ) OTHER INFORMATION: GENOMIC DNA US-09-755-665-46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity 100.0
Matches 20, Conservative
                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity 100.
Matches 20; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQ ID NOS: 118
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: DNA
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                      ORGANISM: Homo sapiens
                                                                                                                                                                                                         LENGTH: 5720
                                                                                                                                                                                                                                                                             US-09-800-729-18
                                                                                                                                                                                                                                   TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              쉱
                                                                                                                                                                                                                                                                                                                                                                                                                  ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                  GENERAL INCORMATION:
APPLICANT: Marc J. Rubenfield et al.
APPLICANT: Marc J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS TITLE OF INVENTION: ABENCINCANTION: ABENCINCANTION: APPLICATION NUMBER: US/09/252,991A
CURRENT PILING DATE: 1999-02-18
PRIOR APPLICATION NUMBER: US 60/074,788
PRIOR FILING DATE: 1998-02-18
PRIOR FILING DATE: 1998-02-18
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Strabala, Timothy
APPLICANT: Strabala, Timothy
APPLICANT: Strabala, Timothy
APPLICANT: Nieuwenhuizen, Niels
TITLE OF INVENTION: Compositions Isolated from Plant Cells
TITLE OF INVENTION: and Their Use in the Modification of Plant Cell Signalling
FILE REFERENCE: 11000/1020
CURRENT APPLICATION NUMBER: US/09/228,986
CURRENT PILING DATE: 1999-01-12
NUMBER OF SEQ ID NOS: 130
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 11
LENGTH: 3097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 4; Length 1092; 7.4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 4; Length 3097;
7.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        32 Human secreted proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1.0%; Scor.
100.0%; Pred. No. ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 1.0%; Score 20; DB Best Local Similarity 100.0%; Pred. No. 7.4 Matches 20; Conservative 0; Mismatches
                                                                                                                     RESULT 6
1.09-252-991A-1287/c
1. Sequence 1287, Application US/09252991A
1. Patent No. 6551795
       1467 GGCACGACCATTGCTTAACC 1486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1467 GGCACGACCATTGCTTAACC 1486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1387 GTTGTGCTTTTGGAGCTCAT 1406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2556 Grigifitigaagcicai 2575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        126 GGCACGACCATTGCTTAACC 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 11, Application US/09228986
Patent No. 6359198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 18, Application US/09800729
Patent No. 6605592
                                112 GGCACGACCATTGCTTAACC 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; TYPE: DNA
; ORGANISM: Pseudomonas aeruginosa
US-09-252-991A-1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: DNA ORGANISM: Eucalyptus grandis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity 100.
Matches 20; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
APPLICANT: Ni et al.
TITLE OF INVENTION: 32 |
FILE REFERENCE: PZ044P1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 8
US-09-800-729-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 1092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-228-986-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-228-986-11
```

ઠે

ö

Gaps

ö

셤

ઠે

```
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 13
US-09-289-198-168
                                                                                                      US-09-062-451-168
                                                                                                                                                                                                                                                                                                                                             RESULT 12
US-09-598-326-168
                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 168 Application US/09062451

Sequence 168 Application US/09062451

GENERAL INFORMATION:

APPLICANT: Frudakis, Tony N.

APPLICANT: Reed, Steven G.

TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE
TITLE OF INVENTION: TREATMENT AND DIAGNOSIS OF BREAST CANCER
NUMBER OF SEQUENCES: 297

CORRESPONDENCE ADDRESS:

ADDRESSEE: G300 Columbia Center, 701 Fifth Avenue
STREET: Washington

COUNTRY: Washington

COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1.0%; Score 19; DB 3; Length 358; 100.0%; Pred. No. 22;
                                   COUNTRY: USA
ZIP: 98104-7092
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT APPLICATION DATA:
CURRENT APPLICATION DATA:
APPLICATION NUMBER:
TILING DATE: 04-APR-1997
CLASSIFICATION:
ATTOMNEY/AGENT INPORMATION:
NAME: MAKI, DAVIG J.
REGISTRATION NUMBER: 31,392
REGISTRATION NUMBER: 31,392
RECISTRATION NUMBER: 210121.419C2
TELEPHONE: (206) 622-4900:
TELEPHONE: (206) 622-4900:
                                                                                                                                                                              CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/991,789A
FILING DATE: 11-Dec-1997
CLASSIFICATION: «Unknown>
ATTORNEY/AGBAT INFORMATION:
NAME: POtter, Jane E. R.
REGISTRATION NUMBER: 33,332
REFERENCE/DOCKET NUMBER: 210121.419C3
TELEPHONE: (206) 622-4900
TELEPHONE: (206) 622-6031
INFORMATION FOR SEQ ID NO: 168:
SEQUENCE CHARACTERISTICS:
LENGTH: 358 base pairs
TYPE: nucleic acid
TYPE: nucleic acid
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%; Pred. No. -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; TOPOLOGY: linear
; SEQUENCE DESCRIPTION: SEQ ID NO: 168:
US-08-991-789A-168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTY: USA
ZIP: 98104-7092
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
CMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                950 AGGCAGAGGTTGAGATCAT 968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             228 AGGCAGAGGTTGAGATCAT 246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEFAX: (206) 682-6031
INFORMATION FOR SEQ ID NO: 168:
                        STATE: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 1.0%
Best Local Similarity 100.0
Matches 19; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-062-451-168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
```

```
ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Frudakis, Tony N.
Smith, John M.
Reed, Steven G.
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE
TITLE OF INVENTION: TREATMENT AND DIAGNOSIS OF BREAST CANCER
                                                                                                                                                                                            .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Law Group PLLC
                                                                                                                                           DB 4; Length 358; 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 358;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY: USA.

COUNTRY: USA.

IIP: 981.04-7092

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/598,326
FILING DATE: 20-Jun-2000
CLASSIFICATION: CURNOWN:
ATTORNEY/AGENT INFORMATION:
NAME: POCTER: Jane E.R.
REGISTRATION NUMBER: 33,332
REPERENCE/DOCKET NUMBER: 210121.419D1
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQUENCES: 247
CORRESPONDENCE ADDRESS:
ADDRESSEE: Seed Intellectual Property
STRDEST: 701 Fifth Avenue, Suite 6300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 4;
                                                                                                                                           Query Match 1.0%; Score 19; DB Best Local Similarity 100.0%; Pred. No. 22; Matches 19; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1.0%; Score 19; DB 100.0%; Pred. No. 22; ive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE DESCRIPTION: SEQ ID NO: 168:
US-09-598-326-168
                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 168, Application US/09598326
Patent No. 6423496
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; Sequence 168, Application US/09289198; Patent No. 6586570; GENERAL INFORMATION:
                                                                                                                                                                                                                                            950 AGGCAGAGGTTGAGATCAT 968
                                                                                                                                                                                                                                                                             228 AGGCAGAGGTTGAGATCAT 246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEFAX: (206) 682-6031 INFORMATION FOR SEQ ID NO: 168: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            950 AGGCAGAGGTTGAGATCAT 968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             228 AGGCAGAGGTTGAGATCAT 246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH: 358 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CITY: Seattle
STATE: Washington
LENGTH: 358 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity 100.
Matches 19; Conservative
```

```
completed: May 12, 2004, 20:49:09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-187-330-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Search com
Job time :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
APPLICANT: Frudakis, Tony N.
APPLICANT: Smith, John M.
APPLICANT: Smith, John M.
APPLICANT: Reded, Steven G.
APPLICANT: Retter, Marc W.
APPLICANT: Retter, Marc W.
APPLICANT: Dillon, Davin C.
TITLE OF INVENTION: TREATMENT AND DIAGNOSIS OF BREAST CANCER; FILE REFERENCE: 210121.419C6
CURRENT APPLICATION WUNBER: US/09/429,755A
CURRENT FILING DATE: 1999-10-28
NUMBER OF SEQ ID NOS: 315
SOFTWARE: PastSEQ for Windows Version 3.0
SEQ ID NO 168
LENGTH: 358
                             APPLICANT: Seed, Seven G.
APPLICANT: Misher, Lynda
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE
TITLE OF INVENTION: TERATMENT AND DIAGNOSIS OF BREAST CANCER
FILE REFERENCE: 210121.419C5
CURRENT APPLICATION NUMBER: US/09/289,198
CURRENT FILING DATE: 1999-04-09
EARLIER APPLICATION NUMBER: US 09/062,451
EARLIER FILING DATE: 1997-09-10
EARLIER PILING DATE: 1997-09-10
EARLIER FILING DATE: 1997-00-09
EARLIER FILING DATE: 1997-00-09
EARLIER FILING DATE: 1997-00-09
EARLIER FILING DATE: 1997-00-09
EARLIER FILING DATE: 1996-08-20
EARLIER FILING DATE: 1996-08-20
EARLIER FILING DATE: 1996-01-01
NUMBER OF SEQ ID NOS: 312
SOFTWARE: FELSEQ FOR Windows Version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1.0%; Score 19; DB 4; Length 358; 100.0%; Pred. No. 22; tive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1.0%; Score 19; DB 4; Length 358;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local Similarity 100.0%; Pred. No. 22; Matches 19; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 168, Application US/09429755A Patent No. 6656480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  950 AGGCAGAGGTTGAGATCAT 968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  228 AGGCAGAGGTTGAGATCAT 246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     950 AGGCAGAGGTTGAGATCAT 968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              228 AGGCAGAGGTTGAGATCAT 246
Frudakis, Tony N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity 100.
Matches 19; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: DNA
CORGANISM: Homo sapien
US-09-429-755-168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: DNA
ORGANISM: Homo sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 14
US-09-429-755-168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-289-198-168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
```

RESULT 15 US-09-187-330-4/c

```
Patent No. 6613740

GENERAL INFORMATION:
APPLICANT: Gases, Illana
APPLICANT: Basan, Merav
APPLICANT: Basan, Merav
APPLICANT: Basan, Merav
APPLICANT: Basan, Merav
APPLICANT: Basan, Merav
APPLICANT: Basan, Merav
APPLICANT: Basan, Merav
APPLICANT: Basan, Merav
APPLICANT: Basan, Merav
APPLICANT: As represented by the Secretary of the
APPLICANT: Departement of Health and Human Services
ITILE OF INVENTION: Activity Dependent Neurotrophic Factor III (ADNF III)
FILE REPERENCE: 015280-291200US
CURRENT APPLICATION NUMBER: US/09/187,330
CURRENT APPLICATION NUMBER: US 60/037,404
EARLIER APPLICATION NUMBER: WO PCT/US98/02485
EARLIER PILING DATE: 1998-02-06
NUMBER OF SEQ ID NOS: 63
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 4
LENGTH: 2421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OTHER INFORMATION: one mouse activity dependent neurotrophic factor OTHER INFORMATION: III (ADNF III) cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 2421;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1.0%; Score 19; DB 4;
100.0%; Pred. No. 23;
iive 0; Mismatches (
Sequence 4, Application US/09187330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                69 TCCTCCTCCAGCTTCCGCT 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 1.0
Best Local Similarity 100.
Matches 19; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: DNA ORGANISM: Mus musculus
```

This Page Blank (uspto)

```
Query Match 100.0%; Score 1944; Best Local Similarity 100.0%; Pred. No. 0; Matches 1944; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 5096, Ap
Sequence 5096, Ap
Sequence 1922, Ap
Sequence 13131, A
Sequence 36420, A
Sequence 4700, Ap
Sequence 4700, Ap
Sequence 2326, Ap
Sequence 122411,
Sequence 1, Appli
Sequence 1, Appli
Sequence 1, Appli
Sequence 1, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 1, Appli
Sequence 3, Appli
                                                                                                                                                  (without alignments)
10521.270 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                            1 atgtecteggegeegtetee......atagtggaeettetetttaa 1944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Published Applications Nat.

(gnz 6/ptodata/2/pubpna/USO7 PUBCOMB.seq:*
(cgnz 6/ptodata/2/pubpna/USO6 TWEW PUB.seq:*
(cgnz 6/ptodata/2/pubpna/USO6 TWEW PUB.seq:*
(cgnz 6/ptodata/2/pubpna/USO6 PUBCOMB.seq:*
(cgnz 6/ptodata/2/pubpna/USO7 NEW PUB.seq:*
(cgnz 6/ptodata/2/pubpna/USO8 PUBCOMB.seq:*
(cgnz 6/ptodata/2/pubpna/USO9 NEW PUB.seq:*
(cgnz 6/ptodata/2/pubpna/USO9 PUBCOMB.seq:*
(cgnz 6/ptodata/2/pubpna/USO0 PUBCOMB.seq:*
(cgnz 6/ptodata/2/pubpna/USO0 NEW PUB.seq:*

                                                                                                                              May 12, 2004, 19:30:15; Search time 837 Seconds
GenCore version 5.1.6
(c) 1993 - 2004 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-923-876-5096
1 US-09-923-876-5096
3 US-10-425-114-11922
3 US-10-425-114-36420
1 US-00-425-114-36420
1 US-10-425-114-36420
1 US-10-425-114-336
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                     2941586 seqs, 2264995651 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Published Applications NA:
                                                                                   nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Post-processing: Listing first 45 summaries
                                                                                                                                                                                                                                                                                                      OLIGO_NUC
Gapop_60.0 , Gapext 60.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               seq length: 0
seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query
Match Length DB
                                                                                                                                                                                                               US-10-086-464-1
1944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1944
2189
268
268
268
951
1011
1134
1500
11552
11724
11101
11101
11515
11515
1161
                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Scoring table:
                                                                                                                                                                                                                                          Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                            Word size :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Database :
                                                                                     OM nucleic
                                                                                                                                                                                                                                                              Sequence:
                                                                                                                                                                                                                                                                                                                                                                     Searched:
                                                                                                                              Run on:
                                                                                                                                                                                                                   Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Result
```

```
Sequence 11, Appl
Sequence 12, Appl
Sequence 21, Appl
Sequence 21, Appl
Sequence 117, Appl
Sequence 117, Appl
Sequence 117, Appl
Sequence 323, Appl
Sequence 323, Appl
Sequence 4273, Appl
Sequence 6773, Appl
Sequence 673, Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 1, Application US/10086464
| Publication No. US20020199218A1
| GENERAL INFORMATION:
| TITLE ON INVENTION: PROLINE-RICH EXTENSIN-LIKE RECEPTOR KINASES
| TITLE OF INVENTION: PROLINE-RICH EXTENSIN-LIKE RECEPTOR KINASES
| FILE REFERENCE: P 25,762-A USA 10/066,464
| CURRENT APPLICATION NUMBER: USA 10/069,304
| PRIOR APPLICATION NUMBER: PCT/CA00/00966
| PRIOR PILING DATE: 2000-08-18
| PRIOR PILING DATE: 1999-08-19
| PRIOR FILING DATE: 1999-08-19
         ALIGNMENTS
                                         . 1897
19389
19389
19389
19389
445511
445586
445586
44755
111035
111035
11186
222391
21396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM: Brassica napus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (1)..(1944)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: CDS
LOCATION: (1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-086-464-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-086-464-1
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURE:
```

9 9

1 ATGTCCTCGGCGCCGTCTCCGGGGACTGGTTCGCCTCCATCTCCACCATCAAACTCCACA ATGTCCTCGGCGCCGTCTCCGGGGGACTGGTTCGCCTCCATCTCCACCATCAAACTCCACA

DB 14; Length 1944;

ô

	Qy 1261 GCTAAGATTGCTTCTGATACAACACGCATGTATCAACACGTGTGATGGGAACCTTTGGG 1320 	1321 TACTTGGCTCCGGAATACGCTGCAAGCGGAAAGCTCACGGAGAAGTCTGACGTTTTCTCA 	1381 THIGGGGTGGGTTTTGGAGCTCALTACTGGACGTCGACCGTTGATGCCAACAATGTC 1381 THTGGCGTTGTGCTTTTGGAGCTCATTACTGGACGTCGACCCGTTGATGCCAACAATGTC		Qy 1561 GCTCGCATGCTTGCTTGCTGCGCCTTTCTGCTTTCAGCTCGCCGGAGACCTCGC 1620	Qy 1621 ATGAGCCAGATTGTGCGTTAGAAGGAAATGTATCACTGTCAGATCTTAACGAAGGG 1680	Qy 1681 ATGAGACCAGGTCAAAGCAATGTATACAGCTCATACGGAGGAAGCACCGATTATGACTCG 1740	OY 1741 AGCCAGTACAATGAAGACATGAAGAAGTTTAGGAAAATGGCACTTGGAACTCAAGAGTAC 1800 Db 1741 AGCCAGTACAATGAAGACATGAAGAAGTTTAGGAAAATGGCACTTGGAACTCAAGAGTAC 1800		Oy 1861 AGCAGGGGCCAAACCACGCGAANTGGAGANGGGAAGATTAAGAGAACGGTCAG 1920 	Oy 1921 GGTTATAGTGGACCTTCTTTAA 1944 Db 1921 GGTTATAGTGGACCTTCTTTTAA 1944	RESULT 2 US-10-086-464-3 ; Sequence 3. Application US/10086464 ; Publication World 182181	4 0	CURRENT APPLICATION NUMBER: US/10/086,464 ; CURRENT FILING DATE: 2002-02-28 ; PRIOR APPLICATION NUMBER: US 10/069,304	
61 ACCACCACTCCTCCAGCTTCCGCTCCTCCCACCACACTTCTTCTCCTCCGCCG 120	CCATCCACTATTCCGACATCTCCTCCTTCTTCTCGCTCTACACCTTCTGCTCCTCCT CCATCTCCACCAACTCCATCTACGCCGGGATCTCCACCTCTTCTTCTTCTCAGCCGTCTCCA [181 CCATCTCCACCAACTCCATCTAGGCCGGGATCTCCACCTCTTCCTCAGGCCGTCTCA 240 241 CCGGCTCCAACTAGGCCGGATCTCCACCGCACCTGTTACTCCTCCTACTCGAAACCCT 300 241 CCGGCTCCAACTAGGCCGGATCTCCACCGCACCTGTTACTCCTCCTACTGAAACCCT 300		361 CCATCTTCTCCCTCGCCGCCGTCTCTTCCGACGGTTATCAACAGGAGTGGTG 420		GGTCCCAAAGCCGGAGGACCTTACGGTGGACAGCAGCAACAATGGCGGCAACAAAACGCA	ACACCACCATCACATCATCATCATCACATCACACCACCAC	CCACGGCAACCTCCTCCACCACCACCCTTTCATGAGCAGCAGCGGCGGCGCACCACCACCACCACCACCACCA	TACTOGACCGTCCAGTTCTTCCTCCACCGTCTCCAGGCTTGTGTTAGGCTTCTCCAAA	AGGACTITCACATACGAGGAGCTAGAGCCACCACAATGGTITCTCCGAGGCAA 		901 GCTGTGAAGCAGTTGAAAGTTGGGAGTGGTCAGGGAGAGGGGGGGTTTCAGGCAAGGTT 960 	961 GAGATCATCAGCAGAGTTCACCACAGGCATCTGGTGTTGGTTATTGCATCGCC 1020	1021 GGTGCCAAAGATTGGTTGTCTATGAGTTTGTTCCTAACAACAACATCTGAGGTTCACCTC 1080 1021 GGTGCCAAAGATTGCTTGTCTATGAGTTTGTTCCTAACAACAATCTCGAGCTTCACCTC 1080	1081 CATGGCGAGGGCTACAATGGAATGGAGCACCAGATTGAAGATTGGAGTCTTGGATCT 1140 1081 CATGGCGAGGGCCTACAATGGAATGGAGCACCAGATTGAAGATTGCTCTTGGATCT 1140 1141 GCTAAAGGACTTTCTTATCTTCATGAAGATTGCAATCCTAAAATCATCACGTGATATC 1200

셤

ઠે

g

ઠે

8 8 8

g

8 8 8

g

6 6 6

8 & 8

8 6 6 6

g 8 g ઠે 셤

ò

1140 1200 1500 1560 1896 1860 1080 1356 1320 1416 1440 1680 1800 1056 1176 1380 1476 1596 1716 1776 1836 2016 966 960 GGTGCCAAAAGATTGCTTGTCTATGAGTTTGTTCCTAACAACAACAACTGCGGGGGGTTCACCTC CATGGCGAGGGACGGCCTACAATGGAATGGAGCACCAGATTGAAGATTGCTCTTGGATCT 1201 AAGGCTTCAAACATATTGATAGATTTCAAGTTTGAAGCTAAGGTTGCTGATTTTGGTCTT
1297 AAGGCTTCAAACATATTGATAGATTTCAAGTTTTGAAGCTTAAGGTTGCTGATTTTGGTCTT GGAGACTTTGAGGGTTTAGCTGATGCAAAGATGAATAATGGGTATGACAGAGAGGAGATG GCTCGCATGCTTGCTTGCTGCTTGGGCTTGTGTTCGCCATTCAGCTCGCCGCAGACCTCGC 1777 ATGAGACCAGGTCAAAGCAATGTATACAGCTCATACGGAGGAAGCACCGATTATGACTCG 1837 AGCCAGTACAATGAAGACATGAAGAAGTTTAGGAAAATGGCACTTGGAACTCAAGAGTAC

```
TYPE: DNA
ORGANISM: Glycine max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM: Zea mays
                                                                                                                                                                                                                                                          US-10-425-114-1922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: DNA
                                                                                                          ઠે
                                                                                                                                                  엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                             Sequence 5096, Application US/09923876
; Sequence 5096, Application US/09923876
; Patent No. US20020013958A1
; GENERAL INFORMATION:
    APPLICANT: Lalgudi, Raghunath V.
    APPLICANT: Lalgudi, Laura Y. (Ito)
    APPLICANT: Sherman, Bradley K.
    TITLE OF INVENTION: POLYNUCLEOTIDES AND POLYPEPTIDES DERIVED FROM CORN SEEDLING
    TITLE OF INVENTION: POLYNUCLEOTIDES AND POLYPEPTIDES DERIVED FROM CORN SEEDLING
    CURRENT APPLICATION NUMBER: US/09/923,876
    CURRENT FILING DATE: 1099-04-21
    PRIOR FILING DATE: 1999-04-21
    PRIOR FILING DATE: 1999-04-21
    PRIOR FILING DATE: 1999-05-05
    NUMBER OF SEQ ID NOS: 6332
    SOFTWARE: PERL PROGRAM
    SEQ ID NO 5096
    LENGTH: 268
    TENGTH: 268
    TENGTH: 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        03-09-923-876-5096
| Sequence 5096, Application US/09923876
| Sequence 5096, US20030237110A9
| Publication No. US20030237110A9
| GENERAL INFORMATION:
| APPLICANT: Lalgudi, Raghunath V. APPLICANT: Kamigaki, Laura Y. (Ito)
| APPLICANT: Sherman, Bradley K. | APPLICANT: Sherman, Bradley K. | TITLE OF INVENTION: POLYNUCLEOTIDES AND POLYPEPTIDES DERIVED FROM CORN SEEDLING; FILE REFERENCE: PL-0012-1 CON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE: NAME/KEY: misc_feature OTHER INFORMATION: Incyte ID No. US20030237110A9 700456354H1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURE:
NAME/KEY: misc_feature
OTHER INFORMATION: Incyte ID No. US20020013958A1 700456354H1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 1.3%; Score 26; DB 9; Length 268; Best Local Similarity 100.0%; Pred. No. 0.0045; Matches 26; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CURRENT APPLICATION NUMBER: US/09/923,876
CURRENT FILING DATE: 2001-08-06
PRIOR APPLICATION NUMBER: 09/298,329
PRIOR PILING DATE: 1999-04-21
PRIOR PILING DATE: 1999-06-21
PRIOR PILING DATE: 1999-05-05
NUMBER OF SEQ ID NOS: 6332
SOFTWARE: PERL PROGRAM
SOFTWARE: PERL PROGRAM
LENGTH: 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1231 TTTGAAGCTAAGGTTGCTGATTTTGG 1256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   203 TTTGAAGCTAAGGTTGCTGATTTTGG 228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: unsure
LOCATION: 63
COTHER INFORMATION: a, t, c, g, or other
US-05-923-876-5096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCATION: 63
COTHER INFORMATION: a, t, c, g, or other
US-09-923-876-5096
2017 GGTTATAGTGGACCTTCTCTTTAA 2040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: DNA
ORGANISM: Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: DNA
ORGANISM: Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: unsure
                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
```

```
Sequence 13131, Application US/10425114
; Sequence 13131, Application US/10425114
; Publication No. US20040034888A1
; GENERAL INFORMATION:
; APPLICANT: Liu, Jingdong
; APPLICANT: Zhou, Yihua
; APPLICANT: Soreen, Steven E
APPLICANT: Goreen, Steven E
; APPLICANT: Cao, Yongwei
; TITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associated With
; TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
; FILE REPERENCE: 38-21(5313) B
; CURRENT APPLICATION NUMBER: US/10/425,114
; CURRENT FILING DATE: 2003-04-28
; NUMBER OF SEQ ID NOS: 73128
                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:

GENERAL INFORMATION:

GENERAL INFORMATION:

GENERAL INFORMATION:

GENERAL INFORMATION:

APPLICANT: Liu, Jingdong

APPLICANT: Liu, Jingdong

APPLICANT: Liu, Jingdong

APPLICANT: Cao, Yihua

APPLICANT: Tabaska, Jack E

APPLICANT: Tabaska, Jack E

APPLICANT: Pabaska, Jack E

APPLICANT: Pabaska, Jack E

APPLICANT: Pabaska, Jack E

APPLICANT: Pabaska, Jack E

APPLICANT: Liu Con INVENTION: Nucleic Acid Molecules and Other Molecules Associated With

TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement

FILE REFERENCE: 38-21(53313)B

CURRENT FILING DATE: 2003-04-28

CURRENT FILING DATE: 2003-04-28

NUMBER OF SEQ ID NOS: 73128

SEQ ID NO 1922

LENGTH: 951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gарв
                                                                   Gaps
                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 1011;
Query Match 1.3%; Score 26; DB 11; Length 268; Best Local Similarity 100.0%; Pred. No. 0.0045; Matches 26; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 1.3%; Score 26; DB 13; Length 951; Best Local Similarity 100.0%; Pred. No. 0.0046; Matches 26; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
1.3%; Score 26; DB 13; Length 10
Best Local Similarity 100.0%; Pred. No. 0.0046;
Matches 26; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE:
; CTHER INFORMATION: Clone ID: JC-GMFL02220096D10_FLIUS-10-425-114-13131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; OTHER INFORMATION: Clone ID: 700171392_FLI
US-10-425-114-1922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1360 GAGAAGTCTGACGTTTTCTCATTTGG 1385
                                                                                                                                1231 TTTGAAGCTAAGGTTGCTGATTTTGG 1256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1231 TITGAAGCIAAGGIIGCIGATITIGG 1256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16 rrrgaagcraagcraccrcarrrag 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
```

셤

```
APPLICANT: La Rosa Thomas J
APPLICANT: La Rosa Thomas J
APPLICANT: La Rosa Thomas J
APPLICANT: Show Yihua
APPLICANT: Thus Thou Yihua
APPLICANT: Cao Yongwei
TITLE OF INVENTION: Soy Nucleic Acid Molecules and Other Molecules Associated With
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
FILE REFERENCE: 38-21(53223) B
CURRENT APPLICATION NUMBER: US/10/424,599
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEG ID NOS: 285684
SEQ ID NO 47702
LENGTH: 1552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Liu, Jingdong
APPLICANT: Liu, Jingdong
APPLICANT: Zhou, Yihua
APPLICANT: Screen, Steven E
APPLICANT: Screen, Steven E
APPLICANT: Tabaska, Jack E
APPLICANT: Tabaska, Jack E
APPLICANT: Cao, Yongwei
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
CURRENT APPLICATION NUMBER: US/10/425,114
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 73128
SEQ ID NO 2326
LENGTH: 1724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 26; DB 13; Length 1552;
Pred. No. 0.0047;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1.3%; Score 26; DB 13; Length 1724;
100.0%; Pred. No. 0.0047;
tive 0; Mismatches 0; IndelB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; OTHER INFORMATION: Clone ID: PAT_MRT3847_143080C.1
US-10-424-599-47702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1.3%; Sco.
100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   , OTHER INFORMATION: Clone ID: 700209610_FLI
US-10-425-114-2326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1360 GAGAAGTCTGACGTTTTCTCATTTGG 1385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1231 TTTGAAGCTAAGGTTGCTGATTTTGG 1256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          779 GAGAAGTCTGACGTTTTCTCATTTGG 804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        832 rrrgaagcraagcricicidarrrrgg 857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 122411, Application US/10424599; Publication No. US20040031072A1; GENERAL INFORMATION: APPLICANT: La Rosa Thomas J APPLICANT: Kovalic David K APPLICANT: Zhou Yihua
                                  ; Sequence 47702, Application US/10424599; Publication No. US20040031072A1; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; Sequence 2326, Application US/10425114; Publication No. US20040034888A1; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity 100.
Matches 26; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 1.3
Best Local Similarity 100.
Matches 26; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: DNA ORGANISM: Glycine max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: DNA
ORGANISM: Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-424-599-122411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-425-114-2326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                        APPLICANT: Zhou, Yihua APPLICANT: Zhou, Yihua APPLICANT: Kovalic, David K. APPLICANT: Screen, Steven E APPLICANT: Screen, Steven E APPLICANT: Tabaska, Jack E APPLICANT: Tabaska, Jack E APPLICANT: Tabaska, Jack E APPLICANT: Tabaska, Jack E APPLICANT: Tabaska, Jack E APPLICANT: Danis and Uses Thereof for Plant Improvement FITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement FILE FILE REFERENCE: 38-21(53313) B CURRENT PILING DATE: 2003-04-28 NUMBER OF SEQ ID NOS: 73128 SEQ ID NO 36420 LENGTH: 1134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 6300, Application US/10425114

| Sequence 6300, Application US/10425114
| Publication No. US2040034888A1
| GENERAL INFORMATION:
| APPLICANT: Liu, Jingdong
| APPLICANT: Liu, Jingdong
| APPLICANT: Zhou, Yihua
| APPLICANT: Screen, Steven E
| APPLICANT: Cao, Yongwei
| TITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associa
| TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
| TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
| TITLE OF INVENTION: 191ants and Uses Thereof for Plant Improvement
| TITLE OF INVENTION: 19133 of 153318
| CURRENT APPLICATION NUMBER: US/10/425,114
| UNMBER OF SEQ ID NOS: 73128
| SEQ ID NO 6300
| TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLICANTS OF THE TENGRAL APPLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 1.3%; Score 26; DB 13; Length 1134; Best Local Similarity 100.0%; Pred. No. 0.0047; Matches 26; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 1.3%; Score 26; DB 13; Length 1500; Best Local Similarity 100.0%; Pred. No. 0.0047; Matches 26; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OTHER INFORMATION: Clone ID: UC-ZMROTEOSINTE097B02 FLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            , OTHER INFORMATION: Clone ID: 700560157_FLI
US-10-425-114-6300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTCATTIGG 1385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1231 TITGAAGCIAAGGITGCIGATITIGG 1256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      . 260 TTTGAAGCTAAGGTTGCTGATTTTGG 285
                                      246 GAGAAGTCTGACGTTTTCTCATTTGG 271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    779 GAGAGICIGACGITITICICATITICG 804
                                                                                                                                                                                                                  ; Sequence 36420, Application US/10425114; Publication No. US20040034888A1
TYPE: DNA
ORGANISM: Zea mays subsp. mexicana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1360 GAGAAGTCTGACGTTT
                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
APPLICANT: Liu, Jingdong
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: DNA ORGANISM: Glycine max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-425-114-36420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 8
US-10-425-114-6300
```

ö

Gaps

ô

RESULT 9

ò 셤

ö

Gaps

ö

FEATURE:

ઠે g

```
1471 ACCTCCTCCACCTCCACCACCGCC 1494
                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-029-386-26494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQ ID NO 26494
LENGTH: 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LENGTH: 1515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 14
       엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               а
APPLICANT: Cao Yongwei
TITLE OF INVENTION: Soy Nucleic Acid Molecules and Other Molecules Associated With
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
FILE REFERENCE: 38-21 (53223) B
CURRENT APPLICATION NUMBER: US/10/424,599
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 285684
LENGTH: 1101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Robin A. Robinson
APPLICANT: Robin A. Robinson
APPLICANT: Robin A. Robinson
APPLICANT: Vittoria Cioce
ITTLE OF INVENTION: Method for Isolation and Purification of
TITLE OF INVENTION: Expressed Gene Products In Vitro
CURRENT PAPLICATION WHOBER: US/10/368,046
CURRENT FILING DATE: 2003-02-15
FRIOR APPLICATION NUMBER: US 60/356,119
FRIOR APPLICATION NUMBER: US 60/356,118
FRIOR APPLICATION NUMBER: US 60/356,118
FRIOR APPLICATION NUMBER: US 60/356,118
FRIOR APPLICATION NUMBER: US 60/356,133
FRIOR APPLICATION NUMBER: US 60/356,137
FRIOR APPLICATION NUMBER: US 60/356,137
FRIOR APPLICATION NUMBER: US 60/356,123
FRIOR APPLICATION NUMBER: US 60/356,123
FRIOR APPLICATION NUMBER: US 60/356,113
FRIOR APPLICATION NUMBER: US 60/356,113
FRIOR APPLICATION NUMBER: US 60/356,113
FRIOR APPLICATION NUMBER: US 60/356,113
FRIOR APPLICATION NUMBER: US 60/356,113
FRIOR APPLICATION NUMBER: US 60/356,113
FRIOR APPLICATION NUMBER: US 60/356,114
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-02-14
FRIOR FILING DATE: 2002-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 1.2%; Score 24; DB 13; Length 1515; Best Local Similarity 100.0%; Pred. No. 0.059; Matches 24; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 1101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OTHER INFORMATION: HPV-16 L1 codon optimized sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                          ; OTHER INFORMATION: Clone ID: PAT_MRT3847_81542C.1
US-10-424-599-122411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 1.3%; Score 25; DB 13; Best Local Similarity 100.0%; Pred. No. 0.017; Matches 25; Conservative 0; Mismatches 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1178 CTAAAATCATTCACCGTGATATCAA 1202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         69 craaaarcarrcaccercararcaa 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 1, Application US/10368046 Publication No. US20040063188A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                               TYPE: DNA ORGANISM: Glycine max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-368-046-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-368-046-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
```

669 ACCICCICCACCICCACCACCGCC 692

ઠે

```
APPLICANT: Penn, Sharron G.
APPLICANT: Rank, David R.
APPLICANT: Rank, David R.
APPLICANT: Hanzel, David R.
APPLICANT: Hanzel, David R.
APPLICANT: HANZEL DAVID R.
APPLICANT: HANZEL BANDID R.
APPLICANT: HANZEL BANDID R.
TITLE OF INVENTION: HUMAN GENOME-DERIVED SINGLE EXON NUCLEIC ACID PROBES USEFUL FOR G.
TITLE OF INVENTION: EXPRESSION ANALYSIS TWO
FILE REPERENCE: AEOMICA-X-2
CURRENT APPLICATION NUMBER: US/10/029,386
CURRENT FILING DATE: 2001-12-20
NUMBER OF SEQ ID NOS: 34288
SOFTWARE: Annowax Sequence Listing Engine vers. 1.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                         GENERAL INCOMMATION:

GENERAL INCOMMATION:

TITLE OF INVENTION:

FILE REFERENCE: 44149-11031

CURRENT APPLICATION NUMBER: US/10/367,095

CURRENT APPLICATION NUMBER: US 60/356,119

PRIOR PILING DATE: 2002-02-14

PRIOR PILING DATE: 2002-02-14

PRIOR PILING DATE: 2002-02-14

PRIOR PILING DATE: 2002-02-14

PRIOR FILING DATE: 2002-02-14

PRIOR PILING DATE: 2002-02-14

PRIOR FILING DATE: 2002-02-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
1.2%; Score 24; DB 16; Length 1515;
Best Local Similarity 100.0%; Pred. No. 0.059;
Matches 24; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; OTHER INFORMATION: HPV-16 L1 codon optimized sequence US-10-367-095-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1471 ACCTCCTCCACCTCCACCACCACCCCC 1494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       669 ACCICCICCACCICCACCGCC 692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 26494, Application US/10029386
Publication No. US20030194704A1
GENERAL INFORMATION:
Sequence 1, Application US/10367095
Publication No. US20030228696A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: DNA
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: DNA
ORGANISM: Homo sapiens
FEATURE:
```

```
Sequence 12794, Application US/10029386

PUBLICANT: PERD, Application US/10029386

PUBLICANT: PERD, Sharron G.

APPLICANT: Penn, Sharron G.

APPLICANT: Hanzel, David K.

APPLICANT: Hanzel, David K.

APPLICANT: HADRINO: HUMAN GENOME-DERIVED SINGLE EXON NUCLEIC ACID PROBES USEFUL FOR (TITLE OF INVENTION: HUMAN GENOME-DERIVED SINGLE EXON NUCLEIC ACID PROBES USEFUL FOR (TITLE OF INVENTION: EXPRESSION ANALYSIS TWO

TITLE OF INVENTION: 1200-12-20

CURRENT APPLICATION NUMBER: 2001-12-20

NUMBER OF SEQ ID NOS: 34288

SOFTWARE: Annomax Sequence Listing Engine vers. 1.1

LENGTH: 579
                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                            OTHER INFORMATION: EXPRESSED IN LUNG, SIGNAL = 0.58
OTHER INFORMATION: EXPRESSED IN HEART, SIGNAL = 0.59
OTHER INFORMATION: EXPRESSED IN ADULT LIVER, SIGNAL = 0.45
OTHER INFORMATION: SWISSPROT HIT: P16056, EVALUE 1.00e-27
OTHER INFORMATION: NT HIT: 914557746, EVALUE 8.00e-90
OTHER INFORMATION: EST_HUMAN HIT: AM418529.1, EVALUE 8.00e-97
US-10-029-386-26494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OTHER INFORMATION: MAP TO CHR7.1

OTHER INFORMATION: EXPRESSED IN LUNG, SIGNAL = 0.58

OTHER INFORMATION: EXPRESSED IN HEART, SIGNAL = 0.59

OTHER INFORMATION: EXPRESSED IN ADULT LIVER, SIGNAL = 0.45

OTHER INFORMATION: WHIT: U96996.1, EVALUE 1.006-107

OTHER INFORMATION: SWISSPROT HIT: P16056, EVALUE 6.006-27

OTHER INFORMATION: EST_HUMAN HIT: AM418529.1, EVALUE 0.006+00
                                                                                                                                                                                                                                                                                                   Query Match 1.2%; Score 23; DB 15; Length 180; Best Local Similarity 100.0%; Pred. No. 0.2; Matches 23; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1.2%; Score 23; DB 15; Length 579;
100.0%; Pred. No. 0.21;
tive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                  1240 AAGGTTGCTGATTTTGGTCTTGC 1262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                221 AAGGITGCTGATTTTGGTCTTGC 243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Search completed: May 12, 2004, 22:42:51
Job time : 843 secs
MAP TO CHR7.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Local Similarity 100.
Matches 23; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: DNA
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-029-386-12794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
```

This Page Blank (uspto)